

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

ANIMAL EXPERIMENTATION.

A public meeting of the Suffolk District Medical Society, to consider the importance of Animal Experimentation in its beneficent influence on the prevention and cure of disease in human beings and in animals was held in Ford Hall on Sunday, November 19, 1922, at which time the following papers were read. Dr. Charles W. Eliot presided.

DOCTOR CHARLES W. ELIOT: Ladies and Gentlemen: This meeting is going to be one of thanksgiving and mutual congratulation; and we hope that it will also further public knowledge of the indebtedness of mankind to the profession of medicine and to that body of medical scientists who are known as "research" men as distinguished from lecturers or practitioners.

Some of us are very glad to come to a meeting of thanksgiving and rejoicing; because we have experienced great disappointments and sorrows within the past year, sorrows and disappointments in trying to make this world a better place for human beings to live in. Here we have a meeting devoted to showing the triumphs of medical scholars, teachers, and practitioners over horrible diseases before which the human race was helpless for centuries but which are now successfully resisted, restricted, or even prevented. The list of these terrible

scourges is long, including smallpox, the plague in several forms, typhus, typhoid, tuberculosis, diphtheria, malaria, anthrax, yellow fever, cerebro-spinal meningitis, hookworm, sleeping sickness, and diabetes, their source and habits for the most part unknown, dreaded by barbarous and civilized people alike, and decimating, or even wiping out tribes, families, and communities. Smallpox was the first of these scourges to be overcome, thanks to Jenner, more than a century ago: but within the past forty years, thanks chiefly to Pasteur and the new science of bacteriology, all of them have been brought under control. We have passed the stage of ignorance and helplessness, have achieved great deliverances already, and reasonably count on happy progress in the future, both near and far.

We are going to hear this afternoon how that great work has been accomplished. I commend to your attention the fact that it has been accomplished by scientific students of medicine and surgery. They are the men that have conferred these great benefits on mankind. I sometimes think that medicine is the most generous and beneficial of all the professions. It not only brings relief, comfort, and joy to individuals, but also to communities, nations, and the race.

Let us rejoice here and always in the great things it has done within recent years, observe the means by which the new resistance to formidable evils has been acquired, and prepare to welcome further progress.

The first speaker this afternoon is Dr. Walter B. Cannon, Professor of Physiology in the Harvard Medical School, who is both a medical research student and a teacher of medicine. In his researches he has given much thought and labor to the connection between gland activities and mental emotions. He has also been for some years past a convincing exponent of the manifold uses of animal experimentation.

I present to you Dr. Cannon.

THE VALUE OF ANIMAL EXPERIMENTATION TO THE PHYSICIAN IN HIS DAILY WORK.*

BY WALTER B. CANNON, M.D., BOSTON.

THE immense life insurance business of this country is based on the selection of persons with favorable chances of living the full span of years. When you apply for a policy, therefore, the company wishes to know whether you are in good health. You have to be examined by a doctor, one who knows how the parts of the body work and what signs they give if they are not working properly. Among the first things he does is to listen to the heart. The heart is a pump, and as it contracts and drives the blood onward into the vessels two sounds are heard on listening over the chest. It was formerly supposed that these sounds were produced by two parts of the heart. Laennec, the classic writer on this subject, thought so. About eighty-six years ago, however, an English physician named Williams made experiments on living animals, and for the first time conclusively proved what causes the second sound. He showed that it is due to a sudden closing of the valves which prevent a back-flow of blood from the vessels into the pump. This proof he obtained by opening the chest and pressing upon the vessels near the valves, when he noted that the sound disappeared; and also by holding one of the valves back with a hook, when he observed that the sharp sound changed to a murmur. Because of these observations, every time the doctor takes out his stethoscope and listens to the heart sounds he knows at once whether the valves are tight or leaking. If they are leaking, the person will be a poor risk for insurance; his chances for long life are reduced, and to increase those chances he must be careful of himself. That knowledge is based directly on animal experimentation. Note that the facts were established nearly one hundred years ago. They have been useful ever since and will continue to be useful so long as medicine is practised. Remember that scientific truth gives a perpetual service.

In an examination for life insurance the doctor also measures the pressure of blood in the vessels. This is important because a high pres-

sure requires of the heart a greatly increased labor, and means possible danger of a break in the vessels if the pressure in them is further increased. Elderly people with high pressure must be especially careful about over-exertion, because that suddenly raises the pressure. All that we know about blood pressure and its control has been learned by animal experimentation. It was first measured in a living creature by an English clergyman, the Reverend Stephen Hales, nearly two hundred years ago. The modern method of studying the pressure has been to attach to an artery in a dog or a cat a glass tube containing mercury and seeing how high a column of mercury is supported. Obviously, this direct method cannot be used on human beings. An indirect method must be employed. That is done now by wrapping around the arm a rubber bag and blowing it up until the pulse is barely felt at the wrist. The pressure in the bag then balances the pressure in the vessels, and by knowing the pressure in the bag, that in the vessels can be judged. This indirect method, which permits one of the most important measurements in medical practice, was devised wholly by experiments on animals. Clearly, it had first to be proved reliable by comparing it with the direct method. To do this, the bag, connected with a mercury column, was wrapped around one hind leg of a dog, while the artery of the other hind leg was connected directly with another mercury column. By comparing the columns on the two sides the reliability of the indirect external method was proved, and the proper size and shape of the bag were determined. Thus, every time a doctor makes a blood-pressure measurement he is employing the results of animal experimentation.

Another test made by the doctor in a life insurance examination is concerned with the ability of the body to use the starchy food which we eat. To learn about that the urine is tested to see whether sugar is continually being given off through the kidneys. If it is, the individual is suffering from a disease called diabetes. It is a common disease, and is surely fatal unless carefully treated. Almost all that we know about diabetes and the mode of treating it has come from experiments on lower animals. Observations on dogs proved that it is produced by destruction or injury of the pancreas. Experiments on dogs, performed here in Boston, showed that the most effective way of treating the disease by diet consists in starving until sugar no longer is lost from the body and then taking food which will maintain bodily activity without further loss of sugar. Only last year in Toronto experiments on dogs demonstrated that a substance can be extracted from the pancreas that can take the place of the damaged or absent pancreas and that permits the body to use sugar in quite the natural way. This method is now being tried in human cases, with I

*A fifteen-minute address at a public meeting at Ford Hall, Boston, Sunday, November 19, 1922.

may add, very favorable results. The growth of our knowledge of diabetes illustrates quite dramatically the relation between experiments on animals and the treatment of human disease.

Another way in which animals help the doctor to give proper care to the sick is in showing the nature of the disease. For example, in a condition such as pleurisy there may be an appearance of fluid in the chest. This fluid may be associated with tuberculosis. The diagnosis is made by finding the tubercle bacillus. It may be impossible to find these germs in the fluid by means of the microscope because they are relatively so few. Under these conditions a small amount of the fluid is introduced into a guinea-pig, an animal very susceptible to the disease. If tuberculosis develops in the guinea-pig, the fluid is known to be due to tuberculosis. A similar test is made when tuberculosis of the kidneys is suspected. The early, most hopeful and most effective treatment is dependent on the information thus obtained. In learning the type of pneumonia from which a person is suffering, so that proper treatment may be started, and in discovering whether a person who has had typhoid fever is a danger to his fellow men, tests in which there is use of the blood of lower animals have proved so serviceable as to be regularly relied upon. Lower animals are also used for the diagnosis of hydrocephalus (rabies) and of syphilis. Every taxpayer in Massachusetts helps to support a State laboratory in which animal tests are continually being employed in the service of medicine for the welfare of the citizens.

Still another important way in which animals have been useful to daily medical practice is in discovering and testing drugs. All the drugs producing sleep, such as sulphonal and trional, which have been discovered in the past fifty years have been discovered by experiments on animals. All the local anaesthetics such as cocaine, for example, rendering small surgical operations painless, have been discovered by experiments on animals. There is a distressing condition affecting man that is known as "angina pectoris." The only drug which will give prompt relief from it is amyl nitrite, a drug which was discovered during experimentation on animals. One of the gravest scourges of our social life has been the disease, syphilis. The present treatment of that disease is by the use of salvarsan. Not only is the treatment the result of a long series of experiments on lower animals, but animals are constantly employed to test the reliability of the salvarsan that is manufactured. In a similar way it is necessary to test other drugs. A very important agent in the treatment of heart disease is digitalis. Its efficacy may vary widely in different samples. The only way to be sure that it has the standard quality is by previously learning its effects on the hearts of lower animals; and, in fact, it is thus tested. There are similar needs in the

standardization of ergot, a drug employed to stop bleeding, particularly the dangerous bleeding that sometimes follows childbirth. Ergot can be tested on an animal and proved effective before being placed in the hands of a doctor, or it can be tested for the first time on a woman who is bleeding to death. The choice has to be made.

I might tell you much more about the relation of animal experimentation to our acquaintance with the values of foods, with the processes of digestion, with respiration, and with various other activities of the body. But in the brief time available the examples I have given must serve to illustrate how knowledge of the workings of the body is in daily use in medical practice. Such knowledge decides whether a doctor shall enter the sick-room with understanding and insight, or baffled and bewildered. You expect the watchmaker to know his business when you send him your watch. He knows it because he has learned the relations and uses of the different parts. You expect the doctor to know his business when you go to him. He knows it because he has learned the uses of the parts of the body. And most of that knowledge, I can assure you, has been obtained by animal experimentation.

It is very important that the public should know that the animals used in laboratories for experimental purposes are not treated cruelly or carelessly. To secure relief from pain and disease is the central purpose of medical investigation. In every medical school and in every institute for medical investigation in the United States rules governing the care of animals have been formally adopted—rules providing for the comfort and sanitary surroundings of the animals, and requiring all operations to be approved by the laboratory director. He is held responsible for the problems studied and the methods used in studying them. Further, the rules require that all operations likely to cause greater discomfort than going under anaesthesia shall be done under anaesthesia and shall be followed by painless death. Only the director is permitted to make exceptions to these last provisions, and he is allowed to do so only in the rare cases in which anaesthesia or death of the animal would defeat the object of the experiment. So confident are the directors of the laboratories that the condition of the animals and the uses to which they are put in medical investigation would be regarded as satisfactory by reasonable people that all the medical schools and medical research institutions in the country have publicly declared that representatives of humane societies may visit the laboratories and see for themselves what is going on. Such persons have been conducted through the laboratories of the Harvard Medical School on a number of occasions.

The experimental method has transformed our modern world. The telegraph, the tele-

phone, wireless telegraphy, the electric light, the electric car, have all been developed through scientific experiments. The experimental method has also made possible great progress in medical and surgical practice. Many causes of disease and injury, however, still remain unknown. We have a firm faith that the same method that has worked so effectively in the past will continue to work and will continue to bring great blessings to man and to the lower animals as well.

DR. ELIOT: I wish to express our obligation to Dr. Cannon for one point which he made plain, that is, the humane methods by which animal experimentation is carried on today. When I was a student in Paris in 1863-64 I used to go to the lectures of a great physiologist of that day, who used, in lecturing to a large audience, animals in such a way that nobody but himself could see what he was doing to the animal on the table. Often he would say to the class after working over the animal for a few minutes, "He has succumbed." It was a cruel waste of animal suffering, for the class had learned nothing. Nothing of that kind goes on in research laboratories today: the whole process is as gentle as possible, and with anesthesia as a rule. Our next speaker is Dr. Place, who is physician in chief at the South Department Boston City Hospital. He is very competent to speak to this audience about the proper use of animals in the treatment of contagious diseases, because the South Department treats contagious diseases on a large scale, and Dr. Place knows that animal experimentation has achieved there great results in diminishing suffering and reducing mortality.

THE ASPECTS OF ANTITOXINS IN RELATION TO ANIMAL EXPERIMENTATION.

BY EDWIN H. PLACE, M.D., BOSTON.

In 1888, diphtheria toxin was discovered by Roux and Yersin. Its discovery and our knowledge of its action is due solely to animal experimentation. The importance of this discovery was very great: first, because it brought to our knowledge a new mode of action in that a disease germ may secrete a virulent poison much in the same way that a rattlesnake does; second, because a method of investigation was opened which demonstrated the same type of action in other very fatal diseases, as tetanus or lock-jaw and botulism of food poisoning; third, because it gave us a new and better understanding of the clinical nature of disease; and lastly because it was the necessary step to the securing a cure which has since followed.

The nature of toxin chemically has defied analysis so far and we owe our considerable

knowledge of this poison to its effects on animals, just as our knowledge of electricity and its control is great without complete information as to its essential nature.

In fact, without animal experiment it would be impossible to know of this mode of action in disease as well as to show the presence of toxin to produce this effect.

Toxin can be demonstrated only by animal experiment.

Following the discovery of diphtheria toxin, von Behring in 1890 found that nature's defense against this dangerous poison was by means of a chemical antidote or antitoxin. Again, this great advance in our knowledge was the result of animal experiment and in no other way could this gain have been made. In fact, the presence of antitoxin in the solutions we use for treatment daily can be shown only by animal experiments.

Antitoxin, thus far, has been produced only in nature's laboratory through the action of living cells either of animals or man. Its chemical nature is not completely known. It can not be produced by purely chemical means nor without living tissues.

If animals could not be used today, we would not only be unable to produce antitoxin for treatment of diphtheria but we could not even show the presence of antitoxin in solutions of it now on hand. And as antitoxin does not keep indefinitely, it would soon be impossible to know the activity and value of antitoxin solutions previously secured.

The benefit of antitoxin has been so marked as to be accepted the world over by those familiar with the facts.

In cases treated at the outset of the disease, the death rate is practically nothing. Of about 500 cases treated among the workers in the South Department from 1895 there have been no deaths. The mortality in the City Hospital before antitoxin was about 45 per cent. Within a year after the use of antitoxin in 1895 it had dropped to 15 per cent.; and the present mortality is about 10 per cent.

In the very dangerous laryngeal form the mortality before antitoxin was 90 per cent., and with the use of antitoxin it has been below 30 per cent., and averages about 25 per cent. From collected figures, the mortality the world over before antitoxin was between 30-40 per cent., and since antitoxin it has been about 10 per cent. Moreover, it is clearly known that the present mortality remains at the present height only because of delay in administering the antidote; that antitoxin on the first day gives no deaths, on the second day about 4-5 per cent. die of diphtheria, on the third day, about 12-15 per cent. die and on the fourth day from 20-30 per cent. succumb.

The total lives saved by antitoxin since 1895 is to be numbered by the million. If we stopped here the great benefits to mankind from antitoxin for diphtheria alone, excluding tetanus

antitoxin, would justify the use of animals for experiment if you allow that man has any right to use the lower animals for his benefit, either for food, clothing or labor. Moreover, we owe them an additional debt on account of diphtheria alone which makes the preceding seem insignificant.

The deaths from diphtheria, due to failure to receive antitoxin or to receiving it too late, are probably in this country alone in the region of 15,000 yearly. In the following cities for the period of ten years, from 1910 to 1919, inclusive, there were the following average yearly diphtheria deaths:

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| Boston | 176 |
| New York | 1289 |
| Philadelphia | 393 |
| San Francisco | 60 |
| New Orleans | 60 |
| Total average yearly deaths | 1978 |

About ten years ago, a means of determining in advance those susceptible to diphtheria and also a means of producing a prolonged immunity were secured so that we now have the power to secure such a general and prolonged immunity that diphtheria may be almost eliminated as a cause of death. It is within the power of a community today without interference with its business, its social affairs, its education, or its recreation; in other words, without restriction of the activities of its people, to be essentially free from diphtheria and its damage. These means are the Schick test and the active immunization by the toxin-antitoxin mixture of Behring.

Both of these procedures not only were secured by means of animal experiment and could be secured in no other way, but they cannot be carried on at all without the use of animals.

It is possible scientifically, even if it may be impracticable, to live in good nutrition and health without the use of animal food. It is, however, absolutely impossible for us to provide a safeguard of any degree against diphtheria without the use of animals. With this use, a thorough practical means is at hand of removing the diphtheria menace almost completely with the saving of millions of lives, enormous suffering, and great economic loss, and this with less suffering and deaths of the animals than occur under natural conditions in the life of wild animals.

It is impossible for me to consider as humane the attitude which would exclude these great benefits to our children and our children's children.

DR. ELIOT: The point that Dr. Place has just made reminds me of a time when a considerable number of women had organized an attack on the Massachusetts Legislature with the object of securing a law prohibiting animal experi-

mentation altogether. The question arose as to whether human beings had any right to sacrifice the lives of animals in order to protect their own lives or the lives of their children—had any right to do it. When I got a chance to address the committee I invited them to consider this question: "How many guinea pigs would you sacrifice in order to save the life of your baby?" The question was not answered. Dr. Strong is the next speaker on the program. Dr. Strong has encountered and dealt with more pestilences, plagues and epidemic diseases than anybody else in the world so far as I know. He has been in close contact with these destructive diseases in the Philippines, in China and in Serbia, and in many other parts of the world. I am sure he will tell you that in these countries animal experimentation, the sacrifice of a few animals for human benefit, has been indispensable. It adds interest to the testimony of Dr. Strong that he has been in immediate contact with several tropical diseases in Panama and the neighboring regions, and can advise travellers how they can protect themselves when traveling in tropical climates, where they are exposed at every moment to infection. It gives me peculiar pleasure to present Dr. Richard P. Strong.

WHAT ANIMAL EXPERIMENTATION HAS DONE FOR EXOTIC AND TROPICAL MEDICINE.*

BY RICHARD P. STRONG, M.D., BOSTON.

It is perhaps superfluous for me to remind an audience of this nature that the subject of health is one that is of great importance to every individual throughout the span of his life from the cradle to the grave. Likewise the prevention of infectious diseases and of their spread is a responsibility of every father and mother, of every sister and brother, of every one of us here this evening. Not one of you desires or believes it right that your neighbor should go about with a contagious or infectious disease, sometimes unrecognized by himself or undetected by others, and convey the same to you or members of your family, not infrequently giving rise to a true epidemic of the infection. Also, you of course realize that we must first recognize or diagnose a disease before we can hope to prevent or successfully treat and cure it. Now for the detection of many of these infectious diseases, as well as for the prevention of their spread, the use of the lower animals is necessary, and an accurate diagnosis of these diseases and the detection of the infection can often not be made or the proper treatment

*Remarks made at public meeting arranged by Suffolk District Massachusetts Medical Society.

given without the use of some of the lower animals. I refer to such infectious diseases as diphtheria, typhoid fever, tuberculosis, plague, cholera, dysentery, small-pox, hydrophobia, sleeping sickness, haemorrhagic jaundice, and so on. I have been asked to speak to you particularly on the *necessity* for the use of the lower animals in the detection and prevention and treatment of the exotic and tropical diseases, so called because they occur particularly in foreign or hot climates but not necessarily confined to such countries. The reason that a number of them do not occur now in the United States in devastating and epidemic form is due largely to the knowledge we have acquired of their etiology and prevention through animal experimentation. In the time at my disposal today I can only refer to a few of these diseases.

Thus cholera is a disease which is endemic in India and in the past twenty years it has killed there nearly eight millions of people: the deaths usually have varied from three to four hundred thousand per year. There have been nine great epidemics of cholera originating in India in a little over eighty years, and the United States has been visited by it on a number of occasions, particularly upon six. In 1892 the river Elbe, the source of water supply of the city of Hamburg, became infected with the excreta containing the cholera organism of one or perhaps several persons with unrecognized cases of cholera. An epidemic followed and in less than two months' time nearly seventeen thousand people who drank the water contracted the disease, and more than half of them died from it. During this epidemic and again in 1911 when cholera was epidemic in southern Europe, a number of cases of the disease arrived at our seaports, but they were detected there by our quarantine officers, as were also a number of individuals carrying the germs of cholera in their intestines and exhibiting no symptoms of the disease, so-called "cholera carriers," by whom cholera is so often introduced into a country. Thus, by the detection of these individuals, cholera was kept out of the United States and an epidemic prevented.

That this was possible depended particularly upon a few animal experiments. This may sound improbable, but it is true, for there is only one method of detecting a cholera carrier, namely, through a bacteriological diagnosis, and the bacteriological diagnosis of the cholera micro-organism depends upon one or two reactions—those of agglutination, or bacteriolysis, the latter the so-called Pfeiffer's reaction. For both of these reactions the use of animals is necessary. The cholera micro-organism cannot be identified from its morphology and cultural properties alone. The agglutination test is performed with a serum prepared by inoculating either a rabbit or a horse with the cholera germ on three or four occasions. A week after the

last inoculation, the rabbit is anesthetized and some of the blood drawn. In performing the agglutination test a few drops of the blood serum of this animal is mixed with a small amount of fluid containing the suspected germs. If these are cholera micro-organisms they cease to move, and become clumped or agglutinated; if the suspected micro-organisms are not cholera micro-organisms, they remain isolated from one another, and motile. The other test for the cholera organism, the Pfeiffer reaction, is performed by inoculating a guinea pig in the abdominal or peritoneal cavity with the suspected germs mixed with a drop of the same diluted anti-cholera serum. If the germs are cholera micro-organisms they become immediately dissolved, and the guinea pig remains well, the serum protecting it. Both of these tests are very accurate and reliable.

I first studied these tests or reactions shortly after the Hamburg epidemic I have referred to. I recall very well my first important experience in employing these bacteriological tests when I was in the Philippine Islands in 1902, and when there rested upon me the responsibility of declaring the city of Manila to be infected with cholera. Two individuals who had come to Manila a few days before had died, each after a very brief illness. No cholera had been present in the Philippine Islands, as far as was known, for many years. Obviously the announcement that cholera had appeared in the city would be serious; the port would be declared infected, quarantine measures would be subjected, commerce, industry, and business would seriously suffer, and an expensive sanitary campaign would have to be undertaken. I applied these two bacteriological tests in connection with these cases, using the rabbit serum and the guinea-pig Pfeiffer test. They were both positive and I did not hesitate to announce that cholera was present. These were the first two cases recognized of the great epidemic of cholera which later swept through the Philippine Islands in which there were 166,000 people attacked and 109,000 deaths. Their early recognition in Manila gave the health authorities the opportunity to immediately undertake an extensive anti-cholera campaign through which the infection was limited to certain districts of the city, and from which the disease was eventually entirely exterminated.

Finally, for the preparation and testing of the value of cholera vaccine or cholera prophylactic, so useful as is the typhoid vaccine for the protection of doctors, nurses, and individuals generally during an epidemic of the disease, the use of animals is also necessary.

Plague is the most fatal of all the dangerous infectious diseases. During the past twenty years over ten million deaths have occurred from it in India. In 1907 the deaths in India were 1,315,000. A million deaths a year from plague has not been unusual, and in the large

cities of India a death rate of five thousand a day has not been so very uncommon. During the past year or two plague has been present in the United States in San Francisco, New Orleans, Pensacola, Beaumont, and Galveston. The diagnosis, prevention, and treatment of bubonic plague are all most closely connected with and dependent upon animal experimentation. In order for us to know whether the plague bacillus is present in material from a bubo of a patient, or in the blood or sputum of a suspected plague patient, or if in the body of a rat supposed to have died of plague infection, it is only necessary to shave a small area, about an inch in diameter, of the skin of the abdomen of a guinea pig, and to rub into this area, very much as in vaccination, a small amount of the suspected material. If the plague bacillus is present the guinea pig contracts plague and dies of it in several days. The diagnosis is made with certainty from the autopsy upon the guinea pig. It cannot be so made without this experiment upon the guinea pig, as neither the cultures of the plague bacillus nor its morphology will distinguish it from a number of other bacteria.

In order to know whether the floor of a room is infected with a plague germ, or whether fleas infected with the plague germ are present in the room, it is often only necessary to place several guinea pigs in such a room. If plague bacilli are present the guinea pigs will contract the disease. Such guinea pigs have been called "sentinel" guinea pigs; so susceptible are these animals to plague that they may contract the disease from a single plague germ.

I have been told that I must tell you of personal experiences. I also recall very well during the winter of 1910 in Manchuria, when Dr. Teague and I were combating the epidemic of pneumonic plague raging there, we had to take the utmost precautions not to introduce plague infection unwittingly into our laboratory, it being our custom when we returned to the laboratory for other work to remove our masks, gloves, etc., used for protection, when we were with patients in the surrounding wards. We were studying the nature of the disease and its method of transmission, and of course in order to discover these facts it was necessary to perform experiments upon animals. When, however, our normal guinea pigs which we had not inoculated began to die of plague in our laboratory, we knew the room was otherwise infected with plague and we promptly moved into another building and disinfected the old one as best we could. Without these sentinel guinea pigs which detected the infection in this laboratory, I might not be here today, perhaps tiring you with the recital of some of these facts. I need only add that the method of transmission of bubonic plague through the agency of the rat flea was discovered by experiments performed upon animals, particularly guinea pigs and rats, and the method of transmission of pneumonic

plague through droplet infection was discovered through experiments, particularly upon guinea pigs, monkeys, and tarbagans, which last animal was the originator of the Manchurian epidemic. Plague is primarily a disease of animals (rodents), and man acquires his infection primarily from these animals.

Finally, in the treatment of bubonic plague, by far the most efficient remedy we possess is the anti-plague serum, and if the diagnosis of the case is made promptly, and the serum given very early in the disease, the results are often very favorable. However, if the serum is given late in the disease very little favorable effect usually results. It may be superfluous for me to say that for the preparation of the anti-plague serum, horses are necessary, and for the testing of the value and strength of the serum to determine the human dose, white rats are often used.

I have not time this evening to go into details of the necessity for animal experimentation in connection with a number of the other diseases I have mentioned. Much of our knowledge regarding the parasite causing amoebic dysentery has been acquired from experiments upon dogs and cats. Sometimes the tubercle bacillus can be most satisfactorily distinguished from the leprosy bacillus by animal inoculation. The guinea pig is susceptible to the former micro-organism and not to the latter. In sleeping sickness and also in haemorrhagic jaundice or Weil's disease, two quite distinct diseases, the parasites causing them are usually not present in sufficiently great number in the blood for us to detect them with the microscope, so that in order to diagnose them it is necessary to inoculate a guinea pig or rabbit with a small amount of the human blood. The parasites develop rapidly in the blood of these animals and a correct diagnosis can then be made. A man might go about for months with sleeping sickness undiagnosed and then it perhaps would be too late to treat him successfully were it not for this test upon animals. It must be stated, however, that some cases of sleeping sickness terminate fatally even when treatment has been begun early in the course of the disease. The most successful method of treatment for sleeping sickness in man, and of surra (the corresponding infection in horses) was discovered through animal experiments performed largely upon guinea pigs and rabbits.

In relation to small-pox, everyone knows that it is necessary or most desirable to use calves for the preparation of small-pox virus, and in the tropics monkeys are sometimes used or vaccinated for the purpose of testing the strength or potency of the vaccine, before it is employed for human vaccination. Owing to the fact that certain apparently unenlightened persons are still opposing vaccination and the use of animals for preparing vaccines, I should like to give you the facts in regard to small-pox in the Philippine Islands during the past few years.

Before the American occupation of the Islands there were frequently between thirty to forty thousand deaths annually in the Philippine Islands from small-pox. When systematic, properly controlled vaccination was introduced and thoroughly carried out, the disease disappeared shortly afterwards in those districts in which the vaccinations were properly made. Thus in the city of Manila for five years prior to 1912, when I left the Islands, there was not a death from small-pox. This condition continued for two years longer. After 1914 general vaccination of new-born children and of other unprotected persons was not insisted upon and often not carried out. In 1918 the disease became epidemic there and fifty thousand deaths followed. General vaccination was then resumed and the Islands are again almost free from small-pox. Facts like these speak for themselves and there would seem to be no need for further argument.

I may say in conclusion that I have never spoken publicly before upon the subject of animal experimentation, and I never thought it would be necessary for me to do so, particularly in Boston, and I have asked myself why is it necessary for us or why does it seem advisable for us to speak upon this subject before you this evening? It seems that it is necessary because largely on account of the recent activities and publications of a number of people who are actually acting in opposition to human progress and the prevention of disease, there is today apparently a great amount of misunderstanding upon the subject of animal experimentation, and many people who have become violently opposed to animal experimentation have been brought to their belief by misrepresentation or misunderstanding of facts, or by ignorance. Now I do not believe that there can be two diametrically opposed beliefs on this subject unless there is on the one hand much ignorance, sometimes due perhaps to exclusion of inquiry or thought, or on the other, maliciousness or fanaticism. To those whose hearts are apparently bad and who are malicious, it is more difficult to appeal, but there are also I believe sincere people who are attending and holding meetings or supporting and even issuing publications in opposition to animal experimentation in general, who are doing so solely because they are really unenlightened upon the actual facts in regard to the necessity for animal experimentation in connection with the progress of medicine and the prevention and relief of suffering. Hence it is to them as well as to you that we appeal; to you who are anxious to familiarize yourself with these facts in connection with animal experimentation, through which such great success in preventive medicine has already come, and through which greater success will undoubtedly come, in order that you may be able to spread such knowledge to your children or relatives, or your neighbors,

for the welfare of all. For unless there is greater popular education upon the subject, unless the general public can acquire a more correct knowledge of the value of animal experimentation in relation to human welfare, misrepresentation by the misguided opponents of animal experimentation and vivisection, bids fair to have a clear field, and ignorance and error will be liable to play havoc in our combat for the prevention of disease and your protection from it. Hence there is a moral obligation for all of us to try and understand and have correct knowledge upon this subject, and when ignorance is dissipated and proper understanding accomplished, the sensational publications and articles that are now appearing against animal experimentation will largely cease before the condemnation and resentment of the American public.

DR. ELIOT: And now we turn to another part of the subject—the benefit to animals themselves. It seems to me that during the last 20 years we Americans, living in an atmosphere of great freedom of thought and speech, have seen developing among us an exaggerated idea of personal liberty for the individual, even if that personal liberty is exercised at the cost and against the will of the mass of the people. A good illustration of this frame of mind is given by the few parents who refuse to allow their children to be vaccinated. Another illustration is given by a minority in the American Commonwealth who violate the Prohibitory amendment and laws. These protests against majority rule take effect on the human race alone. We are now to consider the good results of animal experimentation on other races of animals. I present to you Prof. George H. Parker, who will tell us of the benefits to animals themselves which have resulted from animal experimentation.

THE BENEFIT TO ANIMALS OF MEDICAL EXPERIMENTATION.

BY PROFESSOR GEORGE H. PARKER, BOSTON.

Ladies and Gentlemen:

I was very much interested in what Dr. Eliot said about his experiences in early years in a European laboratory. About 25 years ago I attended a small laboratory, where I presume there was as much vivisection done as in any laboratory in the country. The director was a man who cared for his animals; he was good to them. Reviewing the situation it was quite contrary to that which Dr. Eliot described. In the town where this laboratory was, dogs were used to haul the vegetables to market. They had to come in very early in the morning, and these dogs had no place to rest except on the cold

stones in the market place. The person who conducted this laboratory secured the passage, through the state government, of an act providing that every person who brought vegetables to market must carry a large board on which the dog could rest. In this European town the man who was the director of the largest laboratory was also president of the Society for the Prevention of Cruelty to Animals, and a member of the Anti-Vivisection Society.

This shows the great change which took place in twenty-five years. I am here to say a few words to you about animals and the animal side contrasted with the human side of the subject under discussion. There is a current opinion that diseases are prevalent only among men and domestic stocks of animals. This view is not borne out by what is known of animals in the wild state. Animals are just as subject to infection and disease as are human beings, and the results are as disastrous.

In my work in Cambridge I use lower animals, those far down on the scale, so low that society will scarcely regard them as animals. I remember being visited by a gentleman, who on entering looked around and said: "Oh! you only work on fish and things of that kind; we are interested in animals." It is a recognized fact that when you come to study the lower animals, you find that they are as subject to diseases as the higher. An earthworm or a caterpillar will contract a disease and sometimes die, often at a very critical time in our work. Or take the horn pout; we are fighting diseases in these fishes, which we have secured for this work, and while we are working on them they die. So it is loss of time. One course of this work takes several months, and when the animals die the boys lose interest. They have come to know the individual fishes and even earthworms and recognize their peculiarities.

You know perfectly well that most of our large animals are extinct or disappearing. The conservationists tell us that at the present rate in about 50 years the fur-bearing animals will have gone, or practically gone. The buffalo was practically extinct until the Bison Society took this matter up and cared for the few which were left. Now there are about 700-800 head of buffalo in America. They are kept on large public reserves, they still suffer from diseases, and have to be attended to. They are subject to disease just as much as human beings. So disease runs over the whole animal kingdom. Among higher animals conditions resemble those seen among men.

We know that the horse originated in North America, and was a small animal, the size of a fox, with 5 toes. After evolution in America the horse spread over the world. We know all this from the fossil remains. When North America was discovered there were no horses here. Disease must have swept them away. They were brought back again from Europe probably by

the Spaniards. You must keep in mind that races of animals have been swept away by epidemics in past ages.

I have been to the Pribilof Islands in Alaska to study fur seals. Thousands and thousands of these animals come to these two small islands to breed. They leave in the summer months and stay in the sea nearby. They return in September or October, when about 94,000 young animals are born. When they return to the islands, a year later, they are about 50 per cent. less in number. Pneumonia and hookworm sweep off these animals. Disease becomes rampant among them as soon as the herds gather together.

These two islands were acquired by the government as a part of Alaska. Many considered Secretary Seward crazy when he paid Russia \$8,000,000 for this territory. But from these two islands alone the United States has received a return of \$12,000,000. The government has undertaken preservation measures which have helped. Today a great deal has been done to make the lives of the seals more secure.

Whenever preservation measures are undertaken the knowledge gained by physicians from centuries of observation on human beings and from years of experimental work on animals is immediately made available in bettering the conditions in wild animal life. Wild animals, therefore, profit as much from the advancement of medical science through observation and experimentation as man does himself.

I, therefore, beg you to do whatever you can, and see to it that the animal is protected by being allowed to serve in his place in carrying forward this valuable experimental work for the advancement of Medicine.

DR. ELIOT: We shall now have the pleasure of hearing Dr. Lester H. Howard, the director of the State Division of Animal Industry, who will tell us how animal experimentation has assisted in the control of contagious diseases among animals.

HOW ANIMAL EXPERIMENTATION HAS ASSISTED IN THE CONTROL OF CONTAGIOUS DISEASES AMONG ANIMALS.

BY LESTER H. HOWARD, D.V.S., BOSTON.

In 1913 approximately 1100 horses were destroyed in Massachusetts by official order on account of being affected with glanders—an incurable contagious disease of that species readily communicable, however, to the human subject and always fatal in its results. Eight years later—year 1921—that high record of eleven hundred deaths had been rapidly reduced to eleven; that is to say, for every one hundred glandered horses destroyed in 1913 only one was killed in 1921.

We find the record in the city of Boston alone for the same period still more striking. In the year 1913 in that city 556 glandered horses were destroyed, and last year (1921) only one.

The year 1913 marked the high point in a record which had been gradually ascending for many previous years and might have continued to ascend but for the new methods of diagnosis which had been discovered, and which were first officially put in force at that time.

Many of the animals destroyed were fine individuals of the species and represented a large money value.

Boston has for many years had the reputation of using the finest horses of all American cities. A Western authority in such matters, an official of the American Horse Owners' Association, in comparing the horses, especially the draft horses, of all cities, unhesitatingly states that the finest types are to be seen in Boston, and all know from personal observation of their condition that they are well fed and cared for and worked under humane conditions. A trip to these parts of the city where the motors have not driven them out—the market district, railroad yards, wharves, etc.—will convince anyone that our horses are not only necessary to commercial trade, but at the same time are models of their species.

How have we been able to reduce the condemnation and slaughter of approximately one hundred horses per month in the State of Massachusetts to *one* horse per month? How have we been able to prevent the money loss to our citizens of ten to twenty thousand dollars a month—to say nothing of the saving of human lives (and glanders for many years until recently has taken a certain toll of human life)? What factor has been the principal one in accomplishing this very satisfactory control of a contagious disease of animals, and justifying us in a hope of complete extermination in the near future?

The answer is "animal experimentation," the development, by experiment with live animals, of an accurate method of diagnosis whereby large groups of exposed animals may be tested and those which have picked up the infection disclosed before they become actual spreaders of the disease.

This one instance cited of a contagious disease now under control amply justifies the animal experimentation which has made it possible, and further justifies its continuance for the many benefits to the animal kingdom which will undoubtedly accrue.

It has been said that the human race could not exist without domestic animals, that but for them it would rapidly become extinct. We can well believe that statement if we rely on an estimate that the domestic animal is the original source of thirty-seven per cent. of the food consumed by the people. Consequently it is very necessary that we eliminate disease

from them as far as possible so that they may propagate in sufficient numbers and may rapidly develop to the point where they are available for food and raiment. I have said nothing about the uses of horses for business and pleasure or recreation, that they are indispensable in war, or of how absolutely dependent upon them and other animals is successful agriculture; neither have I mentioned their mute service in producing biological preparations now so extensively used in the prevention and cure of diseases of men.

During the great war many thousand horses were used in this country for manufacturing sera which saved thousands of wounded soldiers from the horrors of such diseases as tetanus and gangrene. We must go on producing animals of the several species and endeavor to maintain them free from disease.

Hog cholera, a contagious disease of swine, formerly decimated our droves of hogs, often destroying a whole herd in the space of a few days. The losses from it in the country at large formerly amounted to more than forty million dollars a year. Finally the Bureau of Animal Industry experiment station at Washington produced anti-hog cholera serum, a biological preparation which immunizes swine against this disease and, if used in connection with a small quantity of the active virus of the disease itself, absolutely protects them for *life*. Swine are used for the production of this material and there can be manufactured from one live hog, by methods which have been perfected by animal experimentation, sufficient material to immunize for life a hundred of the same species.

This year, 1922, is the centenary of the birth of Louis Pasteur, the father of modern bacteriology, whose investigations have resulted in immeasurable benefits to the animal kingdom. One of his earliest efforts resulted in the discovery of the cause of anthrax in sheep, a disease carrying a very high mortality. After much research, having found it to be a living organism, he at once devised a method to protect that species from its ravages. The efficiency of his anthrax vaccine was immediately shown by the successful immunization, from 1881 to 1883, of 800,000 sheep. In his research work the living animal was necessarily used, but millions of animal lives and some human lives have since been saved by the sacrifice of those few.

Every year in Massachusetts we immunize the animals on many infected farms against anthrax, and so complete is the protection afforded that we have very few deaths to record. A pasture or field once infected with the germs or spores of this disease may remain a source of contagion for many years. They become infected either from an anthrax carcass, or in many instances by the overflow of a stream carrying the waste material of a tannery or factory where infected hides or infected wool from foreign countries have been used in manu-

facture. The receding stream leaves some of the infective material on the overflowed fields, and susceptible animals grazing there or consuming the hay which has grown thereon frequently become victims of the infection.

As the result of this research work in diseases of animals first begun by Pasteur, and which subsequent workers have developed to a high degree of perfection, a serum for immunization against the disease is produced from the blood of horses, and we are now able to protect the animals grazing on infected ground, and the pastures, though harboring the organisms, can be used with safety for immunized animals.

The greatest disease eradication work ever undertaken is that now being carried on by the several States in co-operation with the Federal Government in the eradication of bovine tuberculosis by the use of the tuberculin test. Already 20,000 herds in the several States, comprising nearly half a million cattle, have been declared free of the disease and are on the so-called "tuberculosis-free accredited herd list." In addition, 225,000 herds, comprising about two million cattle, have passed one or more clean tests and are well on the road to full accreditation as tuberculosis-free.

It begins to look as if final success of the plan may be looked forward to with confidence, and that bovine tuberculosis will be ultimately eradicated. Think of all it will mean to control, and possibly eradicate, a disease which for many years has taken a toll of hundreds of thousands of animal lives—not to mention the fact of its undoubtedly communicability to the human race, especially children. Tuberculosis in cattle and swine has cost the live-stock industry of the country as much as fifty millions of dollars in a single year. A thousand trains of fifty cars each, loaded to capacity, would contain the number of swine whose carcasses were condemned as unfit for food in one year on account of tuberculosis. In 1916 at only seven of the large packing plants of the country there were condemned on slaughter, as unfit for human food on account of generalized tuberculosis, what would amount to fifty train loads of cattle of forty cars each.

These conditions caused the United States Government to inaugurate the present great cooperative plan now in operation to exterminate the disease. It would not have been started and its successful prosecution could not have been expected without the aid of the tuberculin test, and this test has been developed and perfected by experiments in which live animals have been necessary.

Many of our disease control problems have not been mentioned, and the solution of some of them still awaits the further assistance to be gained by animal experimentation.

Veterinary science, on which is based all animal disease control work, depends for its advancement at the present day largely upon the

new truths which scientific investigators reveal to it, and the day which sees the restriction or prohibition of animal experimentation by competent men will also mark the decline of veterinary science and of the veterinary profession in its chosen field of service to the animal kingdom.

DR. ELIOT: One further consideration with regard to animal experimentation. The opponents generally assume that they are the persons who feel kindly toward animals, and rejoice to cultivate the affection of animals toward themselves. Is not this the real fact—that animal experimentation has developed among animals and also among mankind a greater feeling of kindness between human beings and animals? I think that we may well avoid putting the argument for animal experimentation chiefly on money or property grounds. So many horses, so many cattle, so many hogs saved. Why not say so many children saved? The real ground of justification is that human kindness toward human beings and towards animals has been enormously increased by animal experimentation, and that on the whole the increase of human kindness is the hope of civilization. We owe these processes and developments to that kindest of all professions—medicine.

I could have wished that there were more people here this afternoon to hear the arguments that have been put before you. I hope that there may be more meetings on the subject, and that what has been said here will reach the public, and will prove of value in correcting misunderstandings and in increasing the general knowledge of the objects and methods of medical research.

Book Reviews.

Syphilis and Associated Diseases. By GEORGE M. KATSAINOS.

This book is a very comprehensive and thorough treatise, written by a Greek physician of Boston in modern Greek, for three reasons, which are stated in the preface, which occupies nearly a quarter of the book. These reasons are: First, to offer to the Greeks in America an attractive and useful work on the subject in their own language; Second, to rebuke the stupidity of the various Pseudo-Hellenes; and Third, to rebuke the "foreign-tongued barbarians" who regard Greek as a dead language.

The preface is a long, philosophical discussion of the importance of venereal disease and the harm it does both to the individual, the city, and the Commonwealth; embellished by many quotations from the Greek authors, and displaying great learning. Certain comments are made in this preface on the discourtesy of certain physicians in charge of some of our larger Boston clinics, who apparently refused to allow Dr.

Katsainos to share in the use of their clinical facilities. He quotes Euripides with telling effect in regard to the pride which goes before a fall, then relates the courtesy and kindness with which he was received in clinie in Paris, and states that whatever knowledge he may have, he owes to Paris and not to Boston.

The book is dedicated to Ernest Gaucher and to his great predecessors in the field of Syphilology in Paris. The book itself gives a very interesting and thorough account of what is known of the origin of the disease, and calls attention to the fact that it was apparently unknown to the ancient Greeks and Romans. A thorough account is given of the bacteriological researches which led up to the discovery of the Spirochaeta Pallida.

There are chapters on Etiology, Diagnosis, Prognosis, and, naturally enough, Treatment by Mercury and Salvarsan. There is a chapter on Congenital Syphilis and a chapter on the Wassermann reaction. The social importance of syphilis is discussed at length and its relation to marriage.

There is an interesting study of the origin of the word syphilis, the name which was said to have been given the disease about the year 1530 by Hieronymus Pharakostorius, an Italian physician, from the name of a shepherd who had cursed the sun because it had slain his flocks during a spell of excessive heat. The sun punished him by making a rash come out on his body. Our author, on the other hand, traces the origin of the name to the word *asuphelos*, which occurs in the Iliad, meaning disgusting or dishonored. The name gonorrhea is supposed to have been derived from *gōnē*, meaning sperm, and *reō*, the Greek word meaning to flow. It was not applied in his time to the real gonorrhea, which at that time did not exist, but the name survived.

The book is thorough, scholarly, and of great interest, and shows not only the thorough acquaintance of the author with his subject, but also a refreshing use of appropriate quotations from Homer and the great Greek tragic writers, which give unusual pleasure to the reader of the book. It ought to be translated into English for the benefit of the "foreign-tongued barbarians," whom the author from the tenor of his preface, apparently wishes to rebuke. It was interesting to the reviewer to find that a very moderate acquaintance with ancient Greek enabled him to read this book in modern Greek at least sufficiently well to get the gist of it.

The book is beautifully printed and bound, and the publishers are the Cosmos Printing Company of 49 Madison Street, New York City. It ought to be useful to know the name of the publishing house, if anyone should want to publish a medical treatise in the Greek language.

To recognize our familiar medical terms, so many of which are taken directly from the

Greek, in their former typography, is an interesting experience. Anyone who is familiar with Greek literature from Plato and Aristotle downward will realize its singular value as a medium for accurate definition and description, of which so much of medical literature consists, and if he will take the trouble to read Dr. Katsainos' valuable treatise, will find that modern Greek has not lost the accuracy, beauty, or adaptiveness which characterized the ancient tongue of Hellas.

Crime, Its Cause and Treatment. By CLARENCE DARROW, New York, Thos. Y. Crowell & Co.

Clarence Darrow, the author, a well-known lawyer of Chicago, has written a most timely and valuable book—while it contributes nothing new and the author makes no claim to originality, it summarizes briefly the prevailing opinions of those interested in one of the greatest problems which confronts the world today,—that of crime and its prevention and punishment.

This noted lawyer, who has spent forty years of his life in the courts, has been doing more than pleading cases; he has studied the criminal while prosecuting or defending him, and the result of his experiences and reflections should be read by every student of biology and psychology and by society at large. We say "The conception of man and the treatment of crime and criminals by the courts is not better nor more scientific than was the old-time doctor's treatment of physical ailments by magic, incantations and sorcery." Again, "Some of the more humane or 'squeamish,' who believe in punishment, contend that the object of this infliction is the reformation of the victim."

"The idea that crime is prevented by punishment, if believed, would be followed by requirements that the young should visit prisons that they might realize the consequences of crime, and that all executions should be public and should be performed on the highest hill."

"That vengeance is the moving purpose of punishment is shown by the religious teachings that shape the ethical ideas of the Western World." As to conscience, he says, "Conscience is purely a matter of environment, education and temperament."

"It is apparent that a thing is not necessarily bad because it is forbidden by law. Legislatures are forever repealing and abolishing criminal statutes, and organized society is constantly ignoring laws, until they fall into disuse and die. The laws against witchcraft, the long line of 'blue laws,' the laws affecting religious beliefs, and many social customs, are well known examples of legal and innocent acts which legislatures and courts have once made criminal." "No one who examines the question can be satisfied that a thing is intrinsically wrong because it is forbidden by a legislative body." "Every activity of man should come under the head of 'behavior.'" "In studying crime we are merely

investigating a certain kind of human behavior, and man acts in response to outside stimuli. How he acts depends on the nature, strength, and inherent character of the machine, and the habits, customs, inhibitions, and experiences, that environment gives him." "The child has nothing to do with its early environment during the period when impressions sink the deepest, and when habits are formed." "Heredity has everything to do with making the machine strong and capable, or weak and useless, but where the machine is made, and thrown on the world in its imperfect shape, environment has everything to do in determining what its fate shall be." "The criminal for the most part is the victim of heredity and environment." "The transgression of organized society in the treatment of crime would not be so great if students and scientists had not long since found the cause of crime." "These students have pointed the way for the treatment of the disease, and yet organized government that spends its millions on prosecutions, reformatories, jails, penitentiaries, and the like, has scarcely raised its hand or spent a dollar to remove the cause of a disease that brings misery and despair to millions and threatens the destruction of all social organization."

The intelligent reader will not look upon this book as an apology for criminals, but rather as a plea for justice to individuals who, by reason of physical or mental defects, or environmental situations, over which they have no control, have reacted in an asocial way, and demands that organized society should do more toward prevention of crime instead of using its money and intelligence in inventing new methods of confining and punishing this neglected class of our citizens.

Lateral Curvature of the Spine and Round Shoulders. By ROBERT W. LOVETT, M.D., Sc.D., Boston; John B. and Buckminster Brown Professor of Orthopedic Surgery, Harvard University; Member of the International Society of Surgery; Member of the British, French, Italian and American Orthopedic Societies; Member of the Swedish Society of Medicine; Member of the Royal Society of Physicians of Budapest. Fourth Edition, Revised, with 172 illustrations. P. Blakiston's Son and Co., Philadelphia.

The fourth edition of Lovett's Book on Lateral Curvature of the Spine and Round Shoulders presents a dispassionate review of the theories of causation and the results of treatment of this somewhat baffling condition. The historical chapter is scholarly and contains information of great interest to every orthopedic surgeon.

After a careful analysis of the movements of the spine in living and dead subjects, the author concludes that a piece of rattan, a piece of rubber tubing, a round or square of sponge

rubber, or the backbone of a fish or eat all behave in the same way and rotate in the same direction as does the human spine. He carefully states, however, that the conclusions which are correct for the movements of the normal spine may not necessarily accurately apply to the deformed scoliotic spine. One must study the normal, however, to understand the abnormal and so estimate the probable correctness of theories of causation and the soundness of methods of treatment.

As to the etiology, Lovett concludes that while in the unfixed, attitudinal or false scolioses various factors of occupation, anatomical variations, etc., may be held responsible, there must be apparently in the marked structural cases a diminished resistance of the bones of unknown origin as a background. It is, therefore, likely on general principles that unfavorable school conditions, seating habits, etc., are competent causes of faulty attitude (false scoliosis) and of slight grades of true scoliosis as well, but that they are the sole cause of moderate or severe scoliosis is, in the author's opinion, unlikely.

In discussing the treatment, emphasis is laid upon the importance of restoring by gymnastic exercises and passive stretchings the flexibility of the spine. This is easy and curative in the simple attitudinal type. In the structural types it is difficult and, although accomplished is alone not sufficient to maintain the amount of correction gained. For this braces and jackets are necessary, but they must be looked upon as not corrective in themselves, but as a means of retaining the correction gained by other methods.

Lovett believes that in spite of claims which have been made, there exists at present no indisputable evidence of rapid complete cures of structural scoliosis. He describes his own method of application of jackets and the remodeling of plaster torsos to maintain correction.

The operative treatment recently advocated as a corrective and retentive method the writer considers still *sub judice*, pointing out the fact that while these operations undoubtedly induce ankylosis of the posterior portion of the spine, they leave the bodies of the vertebrae free to rotate as the patients grow. The value or danger of the operative method, therefore, cannot be estimated until several years of growth have passed.

Appreciating the difficulties of ambulatory treatment of this stubborn complicated condition, Lovett is convinced that in certain cases recumbency in a well fitting jacket or shell will prove far more efficient than any ambulatory treatment.

The chapter on faulty attitude and round shoulders discusses the centre of gravity of the body, the etiology of the condition, and the methods of cure by proper clothing, exercises and braces.

De Arte Phisicali et de Cirurgia of Master John Arderne, Surgeon of Newark, Dated 1412. Translated by Sir D'ARCY POWER, K.B.E., M.B. Oxon., F.R.C.S. From a Transcript Made by ERIC MILLAR, M.A. Oxon. From the Replica of the Stockholm Manuscript in the Wellcome Historical Medical Museum. New York: William Wood & Co. 1922.

"From the foundation of the Wellcome Historical Medical Museum in 1913, it has been my intention to publish from time to time, accounts of the research work carried out on the objects, manuscripts and other documents of special interest and importance in the Museum. Owing to the Great War this work was interrupted and had to be suspended.

A short time ago, Sir D'Arcy Power, K.B.E., kindly undertook the laborious task of translating the interesting ancient manuscript of John Arderne of Newark, now in the Royal Library at Stockholm, which throws an important light on English surgery in the fourteenth century.

We are much indebted to Mr. Eric Millar, M.A., for having made a careful transcription of the document and our warmest thanks are due to Sir D'Arcy Power for the painstaking and thorough manner in which he has carried out the translation, which forms the first volume of the series. I trust it will be found of value not only to those interested in English surgery of the period, of which so little is known, but that it will also serve to stimulate the study of the History of Medicine."

This is a slim volume of 60 pages, excellently bound; printed in fine clear type on unusually good paper; illustrated with a quaint and charming colored print of John; and with 13 photographic full-page plates of the Stockholm manuscript.

It is an extremely interesting book, and one which every doctor should either own or examine. John gives many "case reports" in defense of his prescription, or rather as illustrations of their efficacy, and never fails to add the "end-result."

There is a singular combination of good sense, learning and superstition, a combination not entirely unknown today!

Mr. Wellcome deserves the thanks of the profession for making this rare manuscript available for all of us.

The Practical Medicine Series. Under the General Editorial Charge of Charles L. Mix, A.M., M.D. Volume I. *General Medicine.* Edited by George H. Weaver, M.D., Lawrason Brown, M.D., Robert B. Preble, A.M., M.D., Bertram W. Sippy, M.D., Ralph C. Brown, B.S., M.D. Series 1922. Chicago. The Year Book Publishers.

This small volume is one which most physicians may profit by reading, since few will fail to find in it certain items which may be of importance that have previously escaped their attention. It consists of a large number of reviews of articles in the different departments of internal medicine. The quality of these reviews is variable; many are excellent, while others leave the reader with a feeling that the sense of the original has not been so adequately conveyed. But this is probably inevitable in any collection of reviews. A few apparent errors and omissions, typographical or otherwise, have crept in. For instance, on pp. 19-20 there seems to be a confusion of figures in the discussion of a table, and on p. 68 one or more lines have been omitted, seriously impairing the value of the report on the Schick test. But such errors are not numerous. And it would not be fair to mention these without at the same time calling attention to the very great amount of painstaking labor which this volume represents. On the whole it may be set down as a highly commendable performance of a task in which perfection is impossible.

A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology. By TORALD SOLLMAN, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. Second Edition, Entirely Reset. Octavo of 1066 pages. Philadelphia and London: W. B. Saunders Company, 1922.

This volume is a comprehensive and carefully prepared treatise, which contains a very large amount of information concisely stated, together with an unusually generous citation of references to literature. It deserves a wide use by physicians and students both as a book of reference and as a textbook for study and review. Those who desire to cover the essentials of pharmacology with a minimum of time and effort, however, will find this book less satisfactory than will those who wish to go deeper into the subject. For although the attempt has been made, by the use of small and large print and by asterisks, to give prominence to essentials and to throw details into the background, this attempt has not been wholly successful. It is difficult to read without the items in small print forcing themselves upon the attention, and it requires some conscious effort to single out the starred preparations from among the large number of non-starred preparations. The use of more strikingly contrasting type and of other printing devices could improve matters in this respect. But for the more serious student this objection is without importance. He will find this work one of great value. Of the newer subjects included may be mentioned the war gases, vitamins, serums and vaccines and endocrine substances, all dealt with in a conservative and scientific manner.

THE BOSTON Medical and Surgical Journal

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ANIMAL EXPERIMENTATION.

THIS subject is of great importance to the nation. It affects the people more than it does the medical profession because the benefits accruing from the study of normal and morbid phenomena in human beings and animals are supplied to the larger number of non-medical persons.

In this number of the JOURNAL a report of the meeting devoted to a consideration of the benefits of animal experimentation, recently conducted under the auspices of the Suffolk District Medical Society, is published. Every person interested in the prevention and cure of disease should have a fairly clear understanding of the vital necessity of maintaining the production of the curative and diagnostic sera and vaccines, for much of the progress of medicine and the development of surgical technic has been founded on the information derived from the study of animals under certain conditions.

The necessity of having at one's command arguments based on facts should be recognized, for the propaganda of the opponents must be met by definite information. Many people do not wait for both sides of a proposition, and an alleged depiction of the suffering of animals tormented by scientists would carry conviction to many that laboratory workers are unfeeling or even cruel. In the journal, *Science*, in com-

bating antivivisection arguments, the statement has been made that, "The advance of sanitation, modern medicine and physiology, nutrition, the teaching of biology and the protection of our industries and agriculture all rest on animal experimentation. The control of epidemic diseases of man and of animals, the management of surgical operations and of child-birth, and the certification of milk, food and water supplies would be impossible without the knowledge gained by such studies. In fact, the present-day protection of the public from diseases, which is vital to our community life, rests on animal experimentation." And, further, that if the opponents should succeed in restricting the scientific use of animals "Every man, woman and child, every unborn babe, every domestic animal in the state, would be affected if this measure becomes a law. It strikes at all. It is unnecessary special legislation, due to prejudice and misinformation. No one will tolerate cruelty to animals. The present laws of the state are drastic and sufficient to control any abuse. We know that there is no cruelty to animals in the laboratories of the universities. They are in charge of men and women of the highest character, who are unselfishly working to better the lot of their fellowmen and to advance the interests of their community and of the state. Anesthetics are always used for animals in the laboratory in exactly the same way that they are used by surgeons in the operating rooms."

The activities of the society opposed to animal experimentation indicate further opposition to existing methods. The mistaken sympathies of these people must be combated. Knowledge is the weapon. Physicians must patiently explain the situation to the laity. The report of the meeting which appears in this issue should be carefully read, the arguments learned and information disseminated.

The situation may become critical. If an attempt is made to prohibit animal experimentation the proponents should find a strong defensive sentiment which would convince the legislature that prohibitive action is not advisable.



NEW ENGLAND ANTI-VIVISECTION SOCIETY.

On November 21 a meeting was held in Huntington Hall by the New England Anti-Vivisection Society. The address was by Dr. Walter R. Hadwen, M. D., L. R. C. P., M. R. C. S., L. S. A., J. P., etc., the well known English opponent of vivisection. The subject of Dr. Hadwen's paper was, "Of What Value Has Vivisection Been to Humanity?" and during the course of the evening he considered *seriatim*, and attempted to refute the arguments advanced and the conclusions reached at the

meeting held on the preceding Sunday in Ford Hall in the interests of vivisection.

"Hard words," said Dr. Hadwen, "break no bones, and hurling epithets against one's opponents is only a sign of a weak case." This statement he proceeded to illustrate, denouncing vivisection and the users of "dirty, filthy serums," in terms which left no doubt as to his views concerning them. Apparently, however, Dr. Hadwen's attitude may be qualified, for early in his address he made the statement that "when a human being is suffering from any disease it is justifiable for the medical man to do everything he possibly can to relieve that condition." That this justifiable relief need not be obtained from animal experimentation, however, must be implied in the positive assertion that conclusions derived from experiments are of no possible benefit to humanity.

A few of Dr. Hadwen's statements may be of at least academic interest. It is well for us to know that all the experiments of Thomas Lewis are without any scientific value; that all diseases of the heart have been discovered by deduction, given a knowledge of the anatomy of the heart and a stethoscope. That the recorded death rate from diabetes is higher than it has ever been may reasonably be true, in view of the greater accuracy of modern death reports. Perhaps the average duration of a diabetic's life, as compared with fifty or twenty years ago, might shed more light on the interpretation of this statement.

"The last experiment must be on man," Professor Starling is quoted as having said. The conclusion drawn from this is that all preceding experiments on animals were inconclusive or possibly misleading.

"Tuberculosis is not a bacterial disease. It has been definitely proven that tuberculosis is not due to the tubercle bacillus." "Tuberculosis can be produced by the injection of anti-typhoid vaccine into a guinea pig."

"There never has yet been a case known of a typhoid patient giving the disease to another person. Typhoid fever is not an infectious disease and never has been."

"A more ridiculous thing than the Wassermann reaction I don't suppose has ever been invented since the world began."

"So far from antitoxin saving the lives of children, it is killing them."

Dr. Hadwen went on to tell his audience that Pasteur was over sixty years of age and not in a fit physical or mental state when he elaborated his germ theory; that he (Dr. Hadwen) has seen many mad dogs but has never yet seen a case of rabies and does not believe that the disease exists; that in fifteen or twenty years the germ theory will be abandoned, and that medical men will confess that bacteria are the best friends man possesses.

A reasoning person can accept such statements only as a weird collection of half truths, part truths, and no truths, served by an ignorant and prejudiced physician to a group of ignorant and gullible laymen.

The attitude of the anti-vivisectionist is a constant reminder of the ostrich who rests secure in a consciousness of safety with his head concealed in a small, dark hole.

RESEARCH AND PRACTICE.

WILLIAM JAMES has said that each man has in himself conflicting ideals which are, in their diverse natures, impossible of combined attainment. We would be philosophers and men of action; diamonds in the rough and dandies; hail fellows and ascetics; each one, perhaps, at times ascendant, but the one for which we are most fitted furnishing the most constant light for our guidance. So, in our more narrow field of medicine, which provides, after all, the spiritual life of most of us, we are torn and divided within ourselves by the various inspirations which our work affords. In the main there are opposed the inspirations and ideals of the general practitioner involving the sacrifice of personal comforts and, to some measure, intellectual ambitions, for the sake of personal service and the satisfaction it brings; and the ideals of scientific achievement, carving for oneself a more permanent niche, adding a stone to the corridor of medical progress, at the expense of personal contact and perhaps personal gain. Neither of these aims is very selfish and neither is purely unselfish, for in both the reward is the consciousness of work well done and service rendered.

What courses are open to the young man about to leave a modern medical school with its definitely scientific trend of teaching? He may wish to practice in the country or in a smaller city, as his father and grandfather did before him, and be a friend and adviser to that community. If he would do this he should forego the large city hospital appointment, for even at this stage his education will become too specialized for him to cover adequately the field he has chosen. A mixed hospital service with a little less of the sciences and considerably more of the art of medicine will serve better to prepare him for his work. As a great surgeon of this community said not long ago, the physician must know more of surgery and the surgeon of medicine. This goal is not yet being approached.

There will be a few men each year so endowed by nature and good fortune that they are eager and able to carry on purely scientific work. For them, if they can prove their ability, laboratory space will not be wanting, providing they can find a way to live, for science will help them but indifferently; her reward consists mainly in a few free reprints and great promise for the future.

There will be a third type of man, however, and not the least in each generation, who will be strongly drawn to both ideals. He will wish, and for purposes of economy will be forced to put his knowledge into practice, and yet the desire to increase that knowledge and to add a little to the storehouse from whence it came will be strong within him. He is the one who will be most torn by conflicting ideals, for he will be trying to serve two masters, and at times they will seem like the upper and the nether mill stones that grind exceeding fine and yet provide no nourishment from within themselves. Industry, application, and a sense of judgment and balance between the directly and the indirectly productive must be his. The way will not always seem clear. Necessity may temporarily obstruct intellectual progress, but the goal will still be there and worth the winning. He should read the last paragraph in Emerson's essay on "Illusions":

"Every god is there sitting in his sphere. The young mortal enters the hall of the firmament; there is he alone with them alone, they pouring on him benedictions and gifts, and beckoning him up to their thrones. On the instant, and incessantly, fall snow-storms of illusions. He fancies himself in a vast crowd which sways this way and that, and whose movement and doings he must obey; he fancies himself poor, orphaned, insignificant. The mad crowd drives hither and thither, now furiously commanding this thing to be done, now that. What is he that he should resist their will, and think or act for himself? Every moment, new changes, and new showers of deceptions, to baffle and distract him. And when, by-and-by, for an instant, the air clears, and the cloud lifts a little, there are the gods still sitting around him on their thrones,—they alone with him alone."

THE ECONOMIC LOSS FROM TUBERCULOSIS.

The Texas State Journal of Medicine estimates the economic loss to the country from tuberculosis to be five million dollars for each year on the basis of the value of each individual citizen to the nation of one hundred dollars per year, but this does not include the financial loss to the individual and the family due to loss of income, cost of medical treatment and waste of money for quack treatments. The average loss of time per patient has been estimated to be four months and a half in New York City and the average wage loss was \$836.

A study of the Framingham Demonstration indicates that in five years the death rate has been reduced nearly 70 per cent.

Figures of this sort may be made the basis of arguments before legislators, for economic demonstrations are more convincing than argu-

ments relating to suffering or loss of life. Health of the people is of the greatest importance to the nation.

CASE STUDIES OF THE JUDGE BAKER FOUNDATION.

THE JOURNAL has recently received from the Judge Baker Foundation several specimens of the Case Study method which is being followed as one of the activities of the Foundation. The Foundation, it will be remembered, studies educational, vocational, and conduct problems of young people who are brought for study by parents or who come through the juvenile court, school, and other agencies.

The plan is to present a first series of 20 studies covering a wide range of problems of interest to educators, psychologists, judges, probation officers, and all who deal with matters involving the adjustments of young people. Judging from the specimen case studies which are at hand, we are most favorably impressed by this way of educating people in the problems pertaining to wayward youth. The facts of each case are clearly presented, and are given in such detail that the reader can form a clear picture of the influences, hereditary and environmental, which resulted in the formation of the character portrayed. Each section in the history of the case is accompanied by comment, which points the moral, so to speak, and at the conclusion of the case report there is a summary of its salient points, together with recommendations in regard to the management of the individual. All this is done so clearly and interestingly that the case reports make very fascinating and instructive reading, and cannot help but aid in giving the reader a far better understanding of the problems of adolescence.

PROPOSED ARRANGEMENT FOR A SPECIAL TRIP TO SAN FRANCISCO.

The Raymond and Whitcomb Company, after conference with the officers of the Massachusetts Medical Society, has arranged a special trip to the American Medical Association Meeting in San Francisco next June. This is intended as a New England affair, and friends from other states will be welcome. Obviously, there is no obligation for any member of the Association to join this party unless it fits his wants and needs, but it is hoped that members of our New England States will enjoy traveling together.

Transportation arrangements will be in the hands of Raymond and Whitcomb Company, our oldest and largest American travel organization. They were the pioneers in California tours and have been running them continuously for forty-three years. Their standard of service requires no endorsement.

The arrangements made will allow considerable latitude for members who may have personal plans. The entire party will travel together from New England to San Francisco by way of Chicago and Kansas City with stops at both points, thence along the old Santa Fe Trail to Colorado, including the Royal Gorge and the Pike's Peak region, thence through the Southwest to the Grand Canyon and then to Southern California with stops at Riverside and Los Angeles. From Los Angeles we go to Merced and from there for an ideal trip through the Yosemite by way of Mariposa Grove and Glacier Point, returning via El Portal. We reach San Francisco on the evening of June 24, the day before the meeting opens.

After the meeting, the main party will return through the North Pacific Coast including stops at Portland, Seattle, Victoria, Vancouver and from there through the Canadian Rockies on a schedule planned to make sure of the best scenery by day. Stops will be made at Lake Louise and Banff and the hotels will be used at those points. An unusually attractive feature will be a trip by automobile through Johnson Canyon from Lake Louise to Banff. A stop will be made at Minneapolis, including a drive to Minnehaha Falls, ending at St. Paul. This party will reach New England on the return on the afternoon of July 10.

Another party arranged for those who must return promptly will leave San Francisco after the meeting and come directly through, reaching here on July 3.

Still another provision will permit traveling with the party to San Francisco and an independent return by any route selected.

The cost of the entire trip, including all necessary expenses for transportation, meals, hotel rooms with bath, transfers, drives, sightseeing, care of baggage, and an experienced and competent tour manager to relieve members of all bother, will be about \$500 for the trip returning through the Canadian Rockies; about \$400 for the trip returning direct from San Francisco and about \$370 for membership with the tour westbound including return ticket only eastbound. The above prices do not include expenses during the meeting in San Francisco, but Raymond and Whitecomb Company will be prepared to secure hotel accommodations at the regular prices for those who prefer to arrange them that way instead of through the local committee.

The figures given above are not exact, but are sufficiently accurate to make sure that the prices will not vary more than a very few dollars.

The itinerary, giving detailed program, is on the press. Meantime, further information may be secured through any officer of the society or the Editor of the *BOSTON MEDICAL AND SURGICAL JOURNAL*. Information may also be secured and reservations made at the executive offices of

Raymond and Whitecomb Company, Beacon and Park streets, or at that Company's ticket office at 17 Temple Place, Boston.

THE ANNUAL DIRECTORY.

The annual directory of the Massachusetts Medical Society appears with this issue of the *JOURNAL*, as soon as possible after the first of January, the date of the directory, the few intervening days being a time necessary in which to enter deaths and changes coming in during the last moments in the declining year. By issuing the directory thus promptly it is hoped that the secretaries and treasurers of the District Medical Societies may true up their lists of members before the annual meetings of their societies and before sending out their bills for annual assessments. The secretary, by attempting to keep the membership list all the time correct, has been enabled, with the efficient assistance of the printer, in giving the fellows the yearly accounting at this early date, when it is most needed.

News Notes.

BOSTON'S DEATH RATE.—During the week ending December 23, 1922, the number of deaths reported was 266, against 237 last year, with a rate of 18.16. There were 40 deaths under one year of age, against 27 last year. The number of cases of principal reportable diseases were: Diphtheria, 67; scarlet fever, 39; measles, 81; whooping cough, 70; tuberculosis, 25. Included in the above were the following cases of non-residents: Diphtheria, 2; scarlet fever, 5; measles, 1; tuberculosis, 5. Total deaths from these diseases were: Diphtheria, 8; scarlet fever, 1; measles, 3; whooping cough, 1; tuberculosis, 14. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever 1; tuberculosis, 1.

During the week ending December 30, 1922, the number of deaths reported was 251, against 214 last year, with a rate of 17.13. The number of cases of principal reportable diseases were: Diphtheria, 71; scarlet fever, 53; measles, 79; whooping cough, 90; tuberculosis, 33. Included in the above were the following cases of non-residents: Diphtheria, 9; scarlet fever, 12; measles, 1; whooping cough, 1; tuberculosis, 1. Total deaths from these diseases were: Diphtheria, 7; measles, 2; whooping cough, 3; tuberculosis, 13. Included in the above were the following cases of non-residents: Diphtheria, 1; tuberculosis, 1.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular clinical meeting of the staff of Memorial Hospital was held December 15, 1922, at 8:15

p.m. The following program was given: "Acute Lymphatic Leukemia in a Child Two Years Old," Dr. C. A. Sparrow; "Acute Rheumatic Pericarditis," Dr. E. J. Halloran; "Sinus Thrombosis, Report of a Case," Dr. H. J. Gibby; "Hypertension with Diabetes Mellitus," Dr. O. H. Stansfield; "Fracture of Neck of Femur Complicating Pregnancy," Dr. C. E. Ayers; "Cancer of Pelvic Bones, Case," Dr. Kendall Emerson; "Pilonidal Sinuses," Dr. W. C. Seelye; "Exanthema Subitum," Dr. Merrick Lincoln.

PREVENTION OF BLINDNESS.—The Maine Public Health Association is arranging for a state-wide campaign for the protection of eyesight. The campaign will cover three phases: prevention of blindness in the newborn, the conservation of the eyes of children, and the prevention of eye accidents in industry.

SUSPENSION OF REGISTRATION OF DR. A. STANTON HUDSON.—The Board of Registration in Medicine has suspended the certificate of registration as a physician held by Dr. A. Stanton Hudson, for one year, after a hearing based on a complaint that Dr. Hudson was associated with an unregistered practitioner of medicine. The evidence submitted by two police women was in substance that a sign with Dr. Hudson's name was displayed on a certain house. These women went to the house and asked for Dr. Hudson and a man found to be one Thompson, an unregistered man, entered into negotiations for a supposedly improper service. When the police women asked for Dr. Hudson, Thompson said he was Dr. Hudson. Later, an inspector raided the apartment and found an equipment such as might be in a physician's office. Thompson was arrested and his case has been or will be presented to the Grand Jury.

A man whose appearance is very much like that of Thompson and who registered an automobile under the name of Thompson was formerly seen to go frequently to the house of Dr. Lawrence on Newbury Street. It was alleged at one time that Lawrence had performed an abortion on a patient at the City Hospital, but the patient afterward refused to connect Lawrence with the crime.

As previously reported in this JOURNAL, Lawrence has been suspected of other irregularities.

BEQUESTS TO THE QUINCY CITY HOSPITAL.—By the will of the late Richard L. Harper direct legacies of \$500 are to be given to the Quincy City Hospital and Graduate Nurses' Association of the training school for nurses of the same hospital, and a third of the residue will go to the hospital.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—The eighty-first semi-annual meeting of this society was held in Centre Church vestries,

Main Street, corner of Vestry Street, opposite City Hall, Haverhill, Mass. (Tel. 548), Wednesday, January 3, 1923. The business meeting followed the dinner. The following papers were presented: Thomas F. Kenney, M.D., of Worcester, Director of School Hygiene and full-time School Health Officer, upon "Health Education in Schools and in the Community" (30 minutes); Channing Frothingham, M.D., of Boston, Instructor of Medicine, Harvard University Medical School, upon "Abnormalities in Cardiac Rate and Rhythm and Their Treatment" (30 minutes).

NOTE: The American Medical Association, 535 No. Dearborn Street, Chicago, Ill., recommends the A. M. A. Physicians Auto Emblem to replace the green cross. The former has a significance and its sale is limited to licensed practitioners. Price \$1.50.

PROFESSOR LAFAYETTE B. MENDEL. of Yale University, has been granted leave of absence to deliver as a temporary member of the faculty of the University of California a series of lectures on "New Aspects of the Physiology of Nutrition." He will be in California during May and June, 1923.

THE REGISTRATIONS of Alfred D. Shea and Charles Bouin, as physicians, have been revoked by the Board of Registration in Medicine.

LEGISLATION.—The legislature is in session. Have your representative and senator furnish you with every bill relating to public health measures. Study every bill and give the Committee on Legislation of the Massachusetts Medical Society your opinions relating to each one.

THE ADVISORY COMMITTEE FOR MATERNAL AND INFANT WELFARE.—The Massachusetts Department of Public Health has appointed the following named persons as an advisory committee to assist in the maternal and infant hygiene work: Dr. Edward F. Cody, of New Bedford; Dr. H. G. Stetson, Greenfield; Dr. Richard Smith, Boston; Dr. Fritz Talbot, Boston; Dr. Robert L. DeNormandie, Boston; Miss Mary Beard, Boston; Miss Gertrude Peabody, Boston; Mr. Robert Kelso, Belmont; Edward E. Whiting, West Newton; Mrs. Helen A. MacDonald, Roxbury, and Mrs. Arthur G. Rotch, Boston.

This study will be made under an appropriation of \$15,000, and the educational campaign by means of newspapers, motion pictures and lectures will be inaugurated.

CASE STUDIES OF THE JUDGE BAKER FOUNDATION.—Dr. William Healy has explained that the case studies of this Foundation are not available for publication in a medical journal because they are copyrighted. Only reviews may be published.

BOSTON DISPENSARY.—The annual meeting and banquet of the medical staff of the Boston Dispensary was held at the Copley Square Hotel at 7:15 p.m., on Tuesday, January 2, 1923. Dr. Arthur H. Crosbie, president of the staff for 1922, presided. Officers for the year 1923 were elected as follows: president, Dr. H. J. Inglis; vice-president, Dr. Maynard Ladd; secretary-treasurer, Dr. Oliver G. Tinkham. After the election of officers, an illustrated address was given by Dr. Percy R. Howe, chief of the Research Department of the Forsyth Dental Infirmary, on the subject, "Food Deficiencies from the Experimental Standpoint." Other speakers were Mr. James Jackson, president of the Board of Managers, and Mr. Frank E. Wing, director. About sixty members of the staff were present.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASES.—At the third annual meeting of the Association held in New York City, December 27th and 28th, 1922, the following were present from Boston: Drs. E. W. Taylor, Morton Prince, J. J. Thomas, C. A. McDonald, J. B. Ayer, Stanley Cobb, H. C. Solomon, Henry R. Viets, Hugo Mella, D. A. Thom, Donald Gregg, William J. Hammond, Percival Bailey, W. G. Lennox.

BERKSHIRE DISTRICT MEDICAL SOCIETY.—On December 28 the Berkshire District had a very interesting meeting at which Eugene Kelley, M. D., Commissioner of Health in Massachusetts, spoke very interestingly on "The Trend of Medicine," urging that the general practitioner should take a more active part in practicing preventive medicine. He was accompanied by Dr. Champion of the State Department of Health, who spoke on "Infant Hygiene and Pre-natal Care," and told of the work the department is doing along these lines. Dr. Nye gave the history of the development of the Schick test, and told what the State Department is doing along that line; also demonstrating the method of performing that test. Although there was a very severe storm the meeting was well attended and considerable interest aroused for this work.

Charles Richardson, the son of Dr. Charles H. Richardson, the surgeon of Hillcrest Hospital in Pittsfield, was operated recently for appendicitis and died at that hospital of peritonitis.

Yours very truly,
A. P. MERRILL, M.D.

BOSTON MEDICAL HISTORY CLUB.

At the meeting held at the Medical Library, December 18, it was voted to change the constitution so as to hold the annual meeting in April instead of December.

Dr. Robert M. Green read a paper on "The Early History of Medical Journalism in New

England," which will later appear in full in the **BOSTON MEDICAL AND SURGICAL JOURNAL**.

In commemoration of the anniversary of the birth of Pasteur, Dr. Harvey Cushing spoke of Pasteur's ancestors and of the part of France in which they lived. He showed lantern slides of Besançon and Salins, a small neighboring town, near which Pasteur was born, and from a visit made during the late war said that the smaller country towns in this region are still practically what they were in Pasteur's early life.

Dr. L. J. Henderson talked informally on chemistry in relation to Pasteur's work. He felt that a great part of Pasteur's strength lay in his inherited tenacity and his uncommon capacity for long, combined, careful observation, to which was added an intense patriotism for France and an inborn enthusiasm for truth. But as Pasteur was first of all a chemist, so his method in all his work was essentially chemical.

Dr. M. J. Rosenau spoke of the artistic and social sides of Pasteur and showed an intimate portrait and the medal struck at the opening of the Institute Pasteur.

Drs. Medalia and Henderson discussed the inherent preconception or prevision in his work, and Dr. Farlow his remarkable recovery from his hemiplegia of 1868, his subsequent physical work and especially the great mental efforts he made in fighting for the acceptance of his work.

Dr. J. B. Blake spoke of his religious side and of the beauty of the small chapel in the Institute Pasteur. He also showed a newly published sketch of Pasteur by Vallery-Radot containing some hitherto unpublished photographs.

A number of photographs and a collection of his medical works were shown, and a most interesting exhibit was a double-necked glass flask used by Pasteur in his laboratory, loaned for the meeting by Mrs. Harold C. Ernst.

Miscellany.

U. S. DEPARTMENT OF LABOR, CHILDREN'S BUREAU, WASHINGTON.

Examples of the plans on which the states are starting work under the maternity and infancy law make the purpose of the law clear. Miss Grace Abbott, chief of the Federal Children's Bureau, declares. Miss Abbott by virtue of her position is executive officer in the administration of this law, which was enacted November 23, 1921. In her annual report to the Secretary of Labor she states that the death rate among mothers from causes connected with maternity was higher in the United States birth registration area in 1920 than in any foreign country for which recent figures are available, and that yearly statistics from 1915 to 1920 show an increase rather than a decrease in the

American rate. Infant mortality has decreased but the rate here is still not as low as the rates for five other countries. Every state must now face a general demand, the report says, "that, whatever the source or character of the opposition, community measures of proved value must be utilized for reducing the present unnecessary loss of life."

As chairman of the Federal Board of Maternity and Infant Hygiene, which under the new act must pass upon the states' plans for application of the federal funds allotted them, Miss Abbott reports that the board has not laid down any plan of work which a state must follow, "nor has it made approval of plans contingent on complying with certain conditions, each plan being considered on its merits." Following the method of the agricultural extension, good roads, vocational education, industrial rehabilitation and other federal acts, the maternity and infancy act authorizes aid to the states when matched by state expenditures "for the promotion of the welfare and hygiene of maternity and infancy." It intends, the report says, that the plan of work shall originate in the state and be carried out by the state, and the plans which have been submitted and approved by the board differ widely, according to local conditions.

The report describes typical state programs ranging from preliminary educational work to expansion of existing and well-developed operations. One state, whose counties are fairly well organized for public health work, will place nurses in the organized counties to devote themselves to maternity and infancy care. This state will also conduct prenatal and child hygiene centers and will supervise midwives and maternity hospitals. Another state will increase the number of its prenatal and well-baby clinics and will employ 80 public health nurses to give half time to maternity and infancy work and four nurses to give full time, with two field physicians and six supervising nurses. A third state will have a staff of nurses large enough to make possible a visit to all newborn babies and supervision of boarding homes; it will employ two social workers to give special attention to the problem of preventing unnecessary separation of mothers and babies; it will offer prenatal care and instruction in infant care to mothers, and will investigate maternal deaths, supervise midwives, and co-operate with hospitals.

A state which has not yet matched the full federal apportionment and hence has only the \$10,000 granted outright for the 15 months ending June 30, 1923, proposed to employ the school nurses of the state during the summer for infant welfare work, and to "make its first survey of the state's problems—geographic distribution of maternal and infant deaths, causes, available local facilities, etc." The fact that 18 of the states accepting the act have not yet sufficiently

complete registration of births to be counted in the United States birth-registration area makes it obvious, the report says, that their plans cannot have the foundation of facts which is so desirable, but practically all of these are making the act a basis for a new effort to secure well-enforced registration of births and deaths.

One state will make a study of the racial elements of the population and conduct campaigns to secure the reporting of cases of infant blindness, the use of "drops" in the eyes of newborn babies, and birth registration. In counties having full-time health service it will endeavor to secure the adoption of a program of maternity and infancy care. It will also establish training and demonstration centers in localities offering various types of problems, such as those of cities, small towns, mining camps, and rural districts. Still another state will have monthly conferences at a series of maternity centers throughout the state, with child-health conferences on a similar plan, and will organize Little Mothers' Classes in the schools.

Altogether, 42 states to date have accepted the terms of the act, according to the report, 12 acceptances being by legislatures and the remaining 30 by governors pending the next regular session of the legislature. Porto Rico and Hawaii, not included in the provisions of the act, have expressed their desire for inclusion.

It is gratifying to note that the Bureau is not attempting drastic compulsory measures thus far and that activities are largely along educational lines.

It would be in order, we think, to set forth in a report that prominent physicians have for several years been engaged in a study of the problems of maternal and infant mortality and that much has been accomplished by individuals and organizations. The lowered mortality of infants can hardly be wholly due to the work of the Bureau. Credit should be given to the physicians and organizations entitled to this honor.

NATIONAL RESEARCH COUNCIL'S MEDICAL FELLOWSHIPS.

[*Science*, December 1, 1922.]

EARLY this year the Rockefeller Foundation and the General Education Board jointly pledged to the National Research Council for the administration, through its Division of Medical Sciences, of medical fellowships the total sum of \$500,000, payable annually through a period of five years in sums not to exceed \$100,000 a year.

A special board for administering these fellowships was selected with the approval of the National Research Council and the two foundations. The board is composed of the following members with the chairman of the Division of

Medical Sciences of the National Research Council (at present Dr. F. P. Gay, professor of bacteriology, University of California) as chairman, *ex officio*; David L. Edsall, professor of medicine and dean of the Medical School, Harvard University; Joseph Erlanger, professor of physiology, School of Medicine, Washington University, St. Louis; G. Carl Huber, professor of anatomy and director of the anatomic laboratories, University of Michigan; E. O. Jordan, professor of bacteriology, University of Chicago; W. G. MacCallum, professor of pathology and bacteriology, Johns Hopkins University; Dean D. Lewis, professor of surgery, Rush Medical School, Chicago; Lafayette B. Mendel, professor of physiological chemistry, Yale University; W. W. Palmer, professor of medicine, Columbia University.

This board met for the first time on April 18, 1922, and in this and subsequent meetings outlined certain regulations that should govern their decisions in connection with the appointment of fellows and the method and place of their work. Since that time two additional meetings of the board have been held for the purpose of appointing fellows from the list of applications that have been received. The most essential points decided upon by the board are the following:

(1) The fellowships are designed primarily for research as fundamental to a teaching career in one of the medical sciences. For this latter reason it is prescribed that the fellow must work where facilities for, but not obligations in, teaching are afforded.

(2) The fellowships are for full time, and basal salaries of \$1800 for unmarried men and \$2300 for married men have been determined. Salaries in either of these grades may be larger than the minimum, depending upon the number of dependents and the locality chosen by the candidate for work.

(3) The place of work and the subject chosen for investigation are determined by the candidate with due consideration for the feasibility of the plan proposed. It has been decided that the work may be carried out either in this country or abroad.

The first fellows have been appointed and are now at work. In spite of the fact that the funds for these fellowships generously donated by the Rockefeller Foundation and General Education Board were not available and that announcements concerning the fellowships could not be made until relatively late in the year, numerous applications have been received and 26 candidates have already been accepted.

The fellows so far appointed cover the whole group of the specialties of medicine, and are divided as follows:

| | |
|----------------------------|---|
| Pathology and bacteriology | 5 |
| Medicine | 5 |
| Surgery | 6 |

| | |
|---------------------|---|
| Physiology | 4 |
| Biochemistry | 2 |
| Anatomy | 1 |
| Medical specialties | 1 |
| Pharmacology | 1 |
| Physical chemistry | 1 |

The work is now being carried out in various medical centers as follows:

| | |
|---------------------------------|---|
| Harvard | 7 |
| Columbia | 3 |
| Chicago | 3 |
| Hopkins | 3 |
| Cincinnati | 2 |
| Ohio | 1 |
| California | 1 |
| Iowa | 1 |
| Northwestern | 1 |
| Cornell | 1 |
| Yale | 1 |
| Leipzig | 1 |
| New York Post Graduate Hospital | 1 |

F. P. GAY,

*Chairman, Division of Medical Sciences,
National Research Council.*

LIST OF FELLOWS.

The following is a complete list of fellows so far appointed:

Albritton, Errett C., A.B. Missouri, M.D. Johns Hopkins, Mayfield, Ky. Ohio State University; endocrine physiology.

Andrus, William D., A.B., M.A. Oberlin, M.D. Johns Hopkins, Oberlin, Ohio. University of Cincinnati; surgery.

Anson, Barry J., A.B. Wisconsin (has equivalent of Ph.D. degree). Museatine, Iowa. Harvard Medical School; embryology and histology.

Bent, Michael J., M.D. McHarry, San Andres, Republic of Colombia. College of Physicians and Surgeons, New York City; bacteriology and hygiene.

Cone, William V., B.Sc., M.D. Iowa, Iowa City, Iowa. Iowa State University; neuro-pathology.

Connor, Charles L., M.D. Baylor College of Medicine, Forsyth, Montana. Harvard Medical School; the etiology of Rocky Mountain fever.

Curtis, George M., A.B., M.A., Ph.D. Michigan, M.D. Rush Medical School, Ann Arbor, Michigan. The University of Chicago; surgery of the hypophysis.

Davis, Loyal E., M.S., M.D. Northwestern, Chicago, Ill. Northwestern University; neurological surgery.

Derick, Clifford L., A.B. Lachute Academy, M.D. McGill, Noyan, Quebec, Canada. Harvard Medical School; medicine.

Ferry, Ronald M., A.B. Harvard, M.D. College of Physicians and Surgeons, Columbia, Concord, Mass. Harvard Medical School; biochemistry.

Josephs, Hugh W., A.B. Harvard, M.D. Johns Hopkins, Baltimore, Md. The University of Chicago; physical chemistry.

Leiter, Louis, B.S., M.S. Chicago, M.D. Rush Medical School, Los Angeles, California. The University of Chicago; pathology.

Lennox, William G., A.B. Colorado College, M.D. Harvard, M.A. Denver, Colorado Springs, Colorado. Harvard Medical School; medicine, especially epilepsy.

MacCready, Paul B., B.S. Princeton, M.D. Johns Hopkins, New York. Johns Hopkins University; laryngology.

Melver, Monroe A., A.B. North Carolina, M.D. Harvard Medical School, Gulf, N. C. Harvard Medical School; pathology.

McLean, Jay, B.S. California, A.M., M.D., M.S. Pennsylvania, Baltimore, Md. The University of Leipzig; surgery.

Mills, Clarence A., A.B. South Dakota, Ph.D. Cincinnati, Cincinnati, Ohio. The University of Cincinnati Medical School; experimental medicine.

Rapport, David, A.B., M.D. Harvard, Cornell Medical College, New York, physiology.

Reznikoff, Paul, B.Sc. New York University, M.D. Cornell Medical College, Brooklyn, N. Y. Harvard Medical School; experimental medicine.

Robinson, Elliott S., A.B., M.D., Yale, New Haven, Conn. Yale School of Medicine; bacteriology and immunology.

Rosenthal, Sanford M., M.D. Vanderbilt Medical School, Nashville, Tenn. Johns Hopkins Medical School; clinical medicine.

Schmitz, Herbert W., B.S. Wisconsin, M.D. Harvard, Manitowoc, Wis. New York Post-Graduate Hospital; biochemistry.

Shibley, Gerald S., A.B., M.D. Columbia, Maplewood, N. J. Columbia University; medicine, especially infectious diseases.

Smith, Beverly C., A.B., M.D. Virginia, Franklin, La. Columbia University; toxemia in intestinal obstruction.

Stieglitz, Edward J., B.S. Chicago, M.D. Rush Medical School, Chicago, Ill. Johns Hopkins Hospital; a clinical study of nephritis.

Locke, Charles Edward, Jr., A.B., M.D. California, Special Docteur en Chirurgie, Brussels, University of California Hospital, San Francisco. University of California Hospital; neurological surgery.

The medical schools furnishing more than one graduate for this work rank as follows:

| | |
|---------------------|---|
| Harvard | 4 |
| Johns Hopkins | 4 |
| Columbia | 3 |
| Rush | 3 |

INSTRUCTION AT THE UNITED STATES NAVAL MEDICAL SCHOOL, WASHING- TON, D. C.

The Naval Medical School completed the twentieth year of its existence on June 30, 1922. Two classes have received instruction during the

fiscal year just ended. The first class, which was under instruction from September 9, 1921, to December 27, 1921, consisted of 27 medical officers. From this class six officers were selected for special postgraduate courses, one in general surgery at the Mayo Clinic, two in general medicine at the Harvard School of Medicine, two in diseases of the eye, ear, nose, and throat at the New York Eye and Ear Infirmary, and one in urology at the Brady Urologic Institute in Baltimore. The second class, which began instruction on February 9, 1922, consisted of 14 student officers. The members of the class upon completion of the school course participated in the summer maneuvers of the United States Marine Corps.

ACTIVITIES IN CONNECTION WITH THE VETERANS' BUREAU.

DURING the past year 3000 beds were reserved in naval hospitals for the care of Veterans' Bureau patients. The United States Naval Hospital at Great Lakes, Ill., has become in consequence of this policy one of the largest institutions in the central and western portion of the country for the diagnosis and treatment of neuropsychiatric disorders in patients of the Veterans' Bureau. The naval hospital at Fort Lyon, Col., was transferred to the Veterans' Bureau by Executive order on November 1, 1921, and the naval tuberculous patients under treatment there at that time were transferred to the United States Army General Hospital at Denver, Col., which institution will in the future care for all Navy and Marine Corps personnel suffering from tuberculosis.

During the year the Veterans' Bureau arranged for the transfer of funds to the Navy Department to cover the pay of 500 Hospital Corps men to be used in connection with Veterans' Bureau beneficiaries undergoing treatment in naval hospitals. The Bureau of Medicine and Surgery has supplied the necessary medical officers, nurses, and trained personnel for the administration of physiotherapy to patients of the Veterans' Bureau undergoing treatment at naval hospitals. Through the Red Cross arrangements have been made to extend to beneficiaries of the Veterans' Bureau in naval hospitals an opportunity to receive training in occupational therapy, and teachers skilled in pre-vocational training were detailed by the Veterans' Bureau to those naval hospitals receiving their beneficiaries for the purpose of instructing these patients in academic and commercial subjects. On May 1, 1921, the Bureau of Medicine and Surgery assumed responsibility for this work, took over the Veterans' Bureau personnel detailed for this instruction, and continued the pre-vocational training for Veterans' Bureau patients under the direction of the commanding officers of various hospitals.

The principal naval hospitals caring for Veterans' Bureau beneficiaries are located at Great Lakes, Ill., New York, N. Y., Washington, D. C., League Island, Pa., and Chelsea, Mass. The Bureau of Medicine and Surgery has received very gratifying reports from the Veterans' Bureau regarding the character, thoroughness, and expediency with which their beneficiaries are examined and the high standard of professional treatment rendered their patients in naval hospitals.—Annual Report of the Surgeon-General, U. S. Navy.

**EXCERPTS FROM STATEMENT NO. 38 OF
THE NATIONAL HEALTH COUNCIL ON
LEGISLATIVE MATTERS.**

Out of nearly 18,000 bills and resolutions now pending before both Houses of Congress, there are over 250 concerned with some phase of public health. Many of these are, of course, of minor importance, and many will never get out of committee.

Anthrax. H. R. 7156. Makes unlawful the importation or transportation in interstate commerce of brushes (shaving, lather, or hair) containing horsehair. Passed House, June 19, 1922. No action in Senate. (Statement No. 29, p. 3.)

Child Labor. S. J. Res. 224, H. J. Res. 327, H. J. Res. 332, H. J. Res. 340, H. R. 11707. These resolutions would give Congress power to regulate child labor by means of an amendment to the Constitution. No action has been taken on any of them.

Filled Milk. H. R. 8086. Makes unlawful the manufacture in the District of Columbia or any territory, or transportation in interstate commerce of "filled milk," that milk product which has been blended with fat or oil other than milk fat. Passed House, May 25, 1922. Hearings held by Senate Committee on Agriculture and Forestry. (Statement No. 32, p. 4.)

Leprosy. S. 3721, H. R. 12105. Establishment of a national leper home in Louisiana. Passed Senate, July, 1922. Reported House, September 6, 1922. (Statement No. 34, p. 4.)

Vivisection. H. R. 12605. Forbids employment of noxious gases on living bodies of domestic animals. No action taken. (Statement No. 34, p. 10) S. 758. Prohibiting experiments on living dogs, D. C. and territories. Hearings, June 29, 1922. No further action (Statement No. 8, p. 8.)

Amendment for retirement of officers of the Medical Reserve Corps. H. R. 13045. This is an amendment to the Army Appropriation bill of June 30, 1919. It permits officers failing to pass the physical examination because of disabilities incurred in line of duty to be retired with the rank, pay and allowances of a first lieutenant in the Medical Corps. It applies only to officers and contract surgeons connected with the Medical Corps of the Army.

H. J. Res. 395. Introduced by Representative Underhill, November 27, 1922. Referred to the Committee on Interstate and Foreign Commerce. The purpose of this resolution is to give the Director of the U. S. Veterans' Bureau authority to continue to operate the U. S. Veterans' Hospital No. 36, known as the Parker Hill Hospital, at Boston, until the completion of the new hospital authorized by Congress to be constructed at Northampton, Massachusetts. The Parker Hill Hospital, it is explained in the bill, was made possible through the generosity of the members of the Elks order. Many disabled men now confined at this hospital, it is also claimed, desire to remain there.

U. S. Supreme Court Upholds Vaccination *Zucht v. King*. In an opinion delivered November 13, 1922, too late to get into our Court Decisions Number (Statement No. 37), the United States Supreme Court upheld again the right of a city to require vaccination as a prerequisite for attending school. The Zucht girl was excluded from a public school in San Antonio, Texas, because she was unvaccinated. She brought an injunction against enforcement of the local ordinances, asked a writ of mandamus to compel her admission to school, and also asked for damages. A judgment against her was affirmed by the Court of Civil Appeals for the Fourth Supreme Judicial District of Texas, and an application for writ of error to the Texas Supreme Court was denied. Writ of error was granted to the U. S. Supreme Court, the error assigned being that the due process and equal protection laws of the Federal Constitution had been violated. The court stated that it has long been held to be within the police power of the State to require compulsory vaccination and that power can be delegated to municipal authority.

The leading case in which the Supreme Court has upheld vaccination is *Jacobson v. Massachusetts*, 197 U. S. 11, 25 S. Ct. 358, 49 L. Ed. 643, 3 Ann. Cas. 765. This was affirmed in *Cantwell v. Missouri*, 199 U. S. 602, 50 L. Ed. 329. See also Statement No. 27, p. 4.

The Federal Maternity and Infancy Act. This act has not yet been argued before the Supreme Court in the case of *Massachusetts v. Mellon* et al., which is pending. The return is set for January 2, 1923.

Prohibition—Permits. T. D. 3398. The Commissioner of Internal Revenue of the Treasury Department has issued amended regulations regarding procedure for obtaining permits under the national prohibition act. Permits to physicians and hospitals do not require filing of bonds, as in other cases. Applications in triplicate go to the Prohibition Commissioner at Washington for final action. A permit to prescribe may be combined with one for the use of liquor by a physician in his practice. No permit will be issued to a person who within one year has violated the terms of any permit for

merly issued. Copies of these regulations will be sent to permittees and can be obtained from the Treasury Department. These regulations take effect October 3, 1922.

State Referenda. Several health measures were voted upon at elections in western states on November 7, 1922, with the following results: California. A law was enacted establishing a state board of chiropractic examiners and providing for licenses for chiropractors. Among other things, chiropractors will be allowed to sign death certificates and make reports in accordance with State and municipal health regulations. Another law was passed creating a state board of osteopathic examiners and it confers on this board all functions relating to osteopaths as outlined in the Medical Practice Act of 1913. A proposed state law prohibiting vivisection was beaten.

Colorado. A law which would prohibit vivisection was decisively beaten.

Washington. A law providing that a parent could file a statement with a school principal refusing to allow his child to have a physical examination or to be vaccinated, and that vaccination should not be made a condition precedent for admission to school, was defeated.

Correspondence.

THE VOLUNTARY COMMITMENT.

Mr. Editor:

In connection with the recent interest of the public in the laws for the care of patients in institutions for the insane and the operation of these laws, it is noticeable that there has been much misunderstanding of the so-called Voluntary Commitment and its value to the individual and the community. We read in the papers that if a person is insane, he is unable to decide what shall be done for him, and we are led on to the conclusion that the Voluntary Commitment is something forced upon the patient in some case where those concerned do not wish to go to the courts for a commitment. Therefore, it is regarded as a device by which relatives of a patient, aided by a physician, can "put the patient away."

The Voluntary Commitment fills a very important place in caring for the mentally sick and should be regarded as a very helpful law—helpful to the patient, to his friends, and to the physician. It reads as follows:

(Voluntary Application)

Date.....

To the Superintendent of.....

I desire to be received as a voluntary patient for care and treatment in..... and promise, if my request be granted, to obey all its rules and regulations, and to give three days' notice in writing, before leaving without your permission.

Signed.....

Witness.....

Confusion has arisen because of the failure to discriminate between the legal and medical factors involved. It appears difficult for the legal mind (and the law is legal-minded rather than medical-minded) to get the medical and humanitarian point of view. To the mass, the motive of every action

is the monetary value, the resultant dollars to be derived from the action. Thus, every act, whether of individuals or groups, is scrutinized with this thought in mind.

The medical mind in its training and purpose, on the other hand, approaches more nearly to that of the clergy. The question which the physician asks himself is not "What can I get out of it in dollars?" but "What can I do to mitigate suffering; how can I best care for this person, sick in body and mind?" I purposely link these two because to the physician they are one. A mind diseased means a brain or a body diseased, or both, and the physician's interest is to discover the cause and to heal it. This is his real mission and in it he gets his greatest reward. Truly, he must live, and he who did not place a reasonable value upon his services would be lacking, but to the physician who loves humanity and his profession, the monetary element is secondary. What would be thought of any physician who refused to give of his knowledge and aid to a sufferer until he had received his fee? I grant there are mercenary men in the medical profession and humanitarians in the legal profession, but I am speaking of the average man. To the medical mind it is an insult to place financial above ethical values.

These two points of view, the legal and the medical, must be kept in mind when evaluating the Voluntary Commitment.

Every neuro-psychiatrist constantly sees fearful and depressed persons who come to him for advice. These are, of course, all cases of mental disease. The term "nervousness" should be discarded. It is a mere cloak of the Dark Ages, a palliative used to camouflage facts when we still believed in evil spirits. Confronted with a mental ailment, the physician's first thought, after determining the cause—which is usually within the patient's own body and is rarely environmental (another popular misconception)—is what is the best way to treat this patient. How and where can he receive the greatest physical and psychic aid? Is his effort to adjust himself to his usual environment a detriment to his recovery? Is he liable because of his depression to hurt himself? Should he be placed in an orderly and disciplinary environment because of doubts, fears, or impulsive acts?

There are far more persons suffering from these border-line mental states, who realize perfectly well their condition and what they are doing, than there are persons who are insane in the strictly legal sense—that is, who are detrimental to the community because of their delusions or hallucinations or are dangerous to themselves and to others. These border-line mental people are orientated. They know what they are doing and are frequently intellectually bright. Their disease is mainly in their affective life, not in their intelligence. Yet, because of an unstable emotionalism, they need and desire to be protected from themselves and are perfectly willing to place themselves in an environment organized for the greatest comfort and welfare, where they may receive the consideration and treatment befitting their ailments. They may for the most part be perfectly adapted to their environment, but occasionally be impulsively impelled to some foolish or asocial act which needs mandatory control.

While such a person remains in his home, the law and common sense permit a relative or guardian at such time to interfere and prevent these unwise acts (which acts the person himself would regret). The institution which receives him for treatment, however, has no such right. The law, however, has wisely permitted such a patient to authorize his commitment and protection in an institution until such time as he should decide to leave the institution. The law has authorized institutions to keep a patient on his

own request with the proviso that notice of three days will be given by the patient, within which the relatives may be notified in case the patient is too ill to care for himself. In these three days, arrangement for proper care may be made, and a commitment put through in case such action is advisable.

The whole question centers about the degree of insight which the patient has into his own condition and the effect of his actions upon that condition. We know that there are many persons who possess sufficient insight to know what they are doing, but not enough initiative, volition or judgment, or, because of illness, not sufficient interest or sentiment about their own well being or the effect of their acts upon those nearest to them to conduct themselves in a manner to restore their health. Then there are others who occasionally do impulsive and foolish things. Yet all these may have fair insight into their acts and desire to be protected from themselves. The Voluntary Commitment offers them this temporary control. It is not fair to these sufferers and it may be a very unpleasant task for the relatives to carry out a regular court commitment. The voluntary three-day notice in writing relieves the situation and secures all the control necessary for the medical supervision of the patient.

There are patients who have recurrences of their mental disease and who are perfectly cognizant of the fact and discuss it intelligently. They know when it is coming on and voluntarily go to a hospital for care and treatment. They know that they may become very ill mentally before they are better. Why should they not have the privilege of voluntary treatment just as a typhoid or fracture case should? And if protection and control of the patient's acts for his best medical interest are part of the treatment, why should the family be put to unnecessary expense and inconvenience to secure legal papers which in no wise benefit the patient?

Only institutions authorized by the State Mental Commission, a board of medical specialists unprejudiced and for the most part unpaid, the institutions inspected by and constantly reporting to such board, may receive and treat these patients. For these reasons there is little danger of dishonest conduct or unfair advantage.

As to the family of the patient "putting him away" for their own benefit, such an idea is absurd. To begin with, a patient on a voluntary paper has it entirely within his own power to request his own discharge on three days' notice in writing. If he is unable to give such notice, it is prima facie evidence that he is in need of hospital care and should not be discharged.

It is evident, therefore, that the Voluntary Commitment Law is a boon to the mentally afflicted and it is safe to assume that the Mental Commission as now organized will not place its privileges and powers in the hands of unfit and unscrupulous hospitals.

ARTHUR H. RING.

Arlington Heights, Mass.

A CASE OF CANCER OF THE STOMACH WITH SOME UNUSUAL FEATURES.

Mr. Editor:

Cancer, in its various forms, causations, symptomatology, locations, and methods of treatment, is receiving a good deal of attention at present, and will continue to be investigated for many years. If even one case presents an unusual history, fails to be detected by the visiting staff and interns of two hospitals, in which the X-ray, taken in these two hospitals, gives only a negative evidence, it should be worthy of record.

In this case, very forcible pressure over the seat of the cancer not only did not cause pain, but served more than any of the usual forms of treatment to lessen this pain. For in these severe pains he would ask for hard manual pressure over the pit of the stomach, and say: "It doesn't hurt me, press harder and still harder." This was a case in which vomiting had not been present during the many years of its duration.

Such a case may serve a purpose in the history and record of cancer of the stomach, more from the negative than the positive standpoint.

A man, 69 years of age, a farmer, unmarried, with a good family history, free from any form of malignant disease, had suffered for some 20 years from pain and distress in the epigastric region, usually increased after meals, although at times no distress followed the taking of food. In the past few years his condition has been worse, and pains more severe and more frequent. Some months ago he was taken into one of our hospitals, for observation and possible surgical operation. He was there a week or ten days and no diagnosis arrived at. The X-ray gave nothing but a negative answer. He returned home, but a few weeks of suffering then compelled his physician and his family to send him to another hospital for relief of some sort, if possible. No result, and no diagnosis here, and again the X-ray revealed nothing. The verdict was that he doubtless exaggerated his suffering, and a large element of it was mental. Not being a hospital case, he was returned to his home. He suffered the same old torment, until one night, he, realizing that nothing but a life of suffering, and increasing weakness (for of late he had taken less food for fear of the result), were in store for him, took his own life. One member of his family, believing his suffering had been all he had declared it to have been, insisted that the stomach and gall-bladder be examined. The family physician and medical examiner made the examination, and found a quite large schirrrous cancer in the pylorus, and many and strong adhesions in and about this portion of the stomach. The gall-bladder was free from disease or stones. The condition proved to them his suffering had for many years been indeed very real. It also showed that for some time the case was beyond surgical relief. I was describing the case to one of our surgeons, who had had a large and varied experience in stomach and abdominal surgery, soon after he had gone to his home from the second hospital. He said the relief he had from the severe pressure over the stomach and gall-bladder would almost surely rule out gall-stones and cancer of the stomach, for in either case pressure would materially increase the distress. Because of the failure to find any cause, he suggested a form of neurosis of this region, and if so this pressure would possibly give some relief. But why did pressure bring any relief? Could it be that it lessened or stopped the peristaltic action in the stomach, and so prevented the pulling and tugging at the cancer and these adhesions, for the man often described these pains as pulling and stretching at something inside?

I have given the merest outline and presented the outstanding points of this case, as the man was never examined by me or under my care, but I know the history from his family, to show how obscure and contradictory some features of stomach cancer may be, and we can not always expect a classical picture, and must not rule out a malignant growth here, even if but one distinct and persistent symptom is given us, and others seem to contradict such a diagnosis.

EDWARD SWASEY,
Slater Bldg., Worcester, Mass.

VOX CLAMANTIS.

December 19, 1922.

Mr. Editor:

I very much appreciate your editorial on "Vox Clamantis" in your current issue. However, the attitude on the "Closed Shop Hospital" is not confined to the editorial sanctum of the *Medical Press*. In fact, Dr. M. L. Harris, one of the inside gang of the A. M. A., has denounced this menace in far more unmeasured terms than I could, and he did it before the Chicago meeting of the Associated Faculties and Hospitals. The ideal situation would seem to be that in Schenectady, in which 110 members of the County Medical Society practice in the same hospital, and, wonderful to relate, they have gotten over the idea of passing judgment on each other.

The closed staff is pure political bunkum and it is used to keep men out, not to put them on. Fortunately the board of directors are now taking a hand and they are kicking out those on the closed staff they do not want. "He who diggeth a pitfall." No more need be said. The closed staff is no more a part of American medicine than the closed shop is a part of American industry. Both are vicious.

The Rockefeller Institute pulled a bone-head stunt in the DeKruif propaganda and DeKruif resigned after the first article appeared. If you will investigate you will find that the Rockefeller, Sage and Carnegie Foundations and the Hearst publications are under the control of Russian and Polish Jews and so-called American parlor socialists. The latest report of the Rockefeller Foundation on "Nursing" was written by Emma Goldmark and signed by herself and three other former members of the American Association for Labor Legislation, the old crew that tried to put Compulsory Health Insurance across. The idea now is to provide a million dollars to make nurses into doctors and then put the medical profession into competition with nursing medicine.

I note by your own JOURNAL that you have quite a few nurses practising medicine in your state.

DeKruif's doctorate was put in quotations because Hearst's sought to infer that he was a practising physician, and thus to delude the public into the belief that the profession was divided against itself. So far I have not seen that your JOURNAL has taken exception to the A. M. A. advertising this DeKruif balderdash. The fact of the matter is that the A. M. A. is using its advertising department for purposes of business blackmail, and as a club to keep the state journals in line.

You have a wonderful opportunity to make your JOURNAL serve the public and the rank and file of the profession, but in so doing you will have to listen to men like Mongan, and not to the selfseeking highbrow.

Along about the time that the lynching party has the noose around your editorial neck you may begin to become disturbed by the danger.

Fraternally and cordially yours,

F. H. McMECHAN.

[Note: Compliments to an editor are always sweet noisome and the one in the foregoing letter is duly appreciated. The warnings are accepted as suggestions.

We do not, however, feel that any allusion to race prejudice is in good taste. Every act by an organization or individual should be dealt with on its merits. Russians and Jews have contributed to science. If we disagree with methods we would prefer to do so on logical grounds rather than personal animosity.

While there are serious questions relating to the nursing situation, we cannot regard Dean Edsall and many of his associates as sympathizers with the socialists. So far as the nurses are practising medicine, it may be said that they are doing it everywhere

so far as technical definition is applied to nursing service.

This JOURNAL has been, is, and we trust will continue to be absolutely independent. We see the good accomplished by the A. M. A., and do not hesitate to criticize anything objectionable in the activities of this body. We have not felt the noose. If any person or organization attempts to strangle or muzzle this JOURNAL, there will be some interesting developments. We believe in democracy in medicine.—Editor.]

THE EFFECT OF FEAR ON MENSTRUATION.

Mr. Editor:

The fact that fear and other psychic phenomena modify or even suppress the regular menstruation, is well known to the medical profession.

I want to emphasize this known fact and try to tell the results of my personal observations to the readers of the BOSTON MEDICAL AND SURGICAL JOURNAL.

During the world war thousands of Armenian women were driven from their homes into the plains of Syria and Arabia, where they lived under a reign of terror. As the result of fear and uncertainty of the future, and anxiety for their killed beloveds, 80 per cent. of mature women stopped menstruating, and some showed mental derangements. Of course, later on malaria and other anemic conditions raised this percentage. This condition lasted until the days of armistice. During that period, in spite of amenorrhea, impregnations were not infrequent. Immediately after the armistice these women returned home, and in spite of the same poor hygienic and dietary conditions, a great majority of them started menstruating within three months. After a year they had reached the normal limit.

The removal of the terror and the bright hopes of a future stimulated them to normalcy. But recently the same conditions returned, and according to the reports of my doctor friends, amenorrhea reappeared among the terror-stricken women of Smyrna and Anatolia.

A. S. APELIAN, M.D.,
401 Shawmut Avenue, Boston, Mass.

TEST FOR PERFORATING GASTRIC ULCER.

Boston, Jan. 2, 1923.

Mr. Editor:

On reading Dr. F. B. Hudnut's suggestion of using litmus paper through a small incision to aid in diagnosis where a perforation of the stomach might have occurred, reminded me of a simple aid, suggested I think, by Berkeley Moynihan, which consisted in administering to the patient by mouth a small quantity of methylene blue in water. On opening the abdomen the blue color will be found well diffused.

Very truly yours,

FREDERICK W. JOHNSON, M.D.

THE JEFFERSON MEDICAL COLLEGE OF
PHILADELPHIA.

Tenth and Walnut Streets. December 26, 1922.

Mr. Editor:

It is hereby announced that Dr. Philip B. Hawk is no longer connected with the Jefferson Medical College as Professor of Physiological Chemistry, or in any other capacity.

Very truly yours,
Ross V. Patterson, Dean.

AMERICAN MEDICAL ASSOCIATION, EASTERN
DISTRICT.

OFFICIAL TOUR TO NATIONAL CONVENTION, SAN FRANCISCO, CALIFORNIA.

The American Medical Association Convention will be held at San Francisco, Calif., June 25-29, 1923.

The sub-committee appointed by the secretaries of the medical societies of the Eastern States have arranged a twenty-five day tour to San Francisco and return, stopping at interesting and important points. All details of the trip will be taken care of, and all arrangements made by an experienced tourist representative, who will accompany the party and take entire charge of the tour.

In order to make this tour a success, and to have a special train with all conveniences, including diners, special Pullmans, baggage car, etc., at least 125 members must subscribe.

The state medical societies of the Eastern States and of some of the Middle States have appointed the following sub-committee to arrange for the tour: Dr. Edward Livingston Hunt, Dr. Wilbur Ward and Dr. Malcolm C. Rose.

The Committee extend to all who contemplate attending the Convention a cordial invitation to join the tour, the details of which will be published in the next issue.

EDWARD LIVINGSTON HUNT, M.D., *Secretary*,
Medical Society of the State of New York, 17 West
43d Street, New York.

NEW ENGLAND PEDIATRIC SOCIETY.

The seventy-seventh meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, Jan. 12, 1923, at 8:15 P.M. The following papers will be read: President's Address, Oscar M. Schloss, M.D., Boston; "Medical Treatment of Pyloric Stenosis in Infancy," Wilbur C. Davison, M.D., Baltimore, Md.; "Differential Diagnosis of Acute Abdominal Conditions in Childhood," James S. Stone, M.D., Boston.

Light refreshments served after the meeting.

OSCAR M. SCHLOSS, M.D., *President*,
LEWIS W. HILL, M.D., *Secretary*.

BOSTON CITY HOSPITAL.

Staff Clinical Meeting, Cheever Surgical Amphitheater, Friday, January 19, 1923, at 8 P.M.
8-9:30 P.M.—"The Essential Physiology of the Blood," Thomas E. Buckman. Discussed by George R. Minot. Open discussion. Physicians and students invited. Refreshments served 9:30 P.M.

JOHN J. DOWLING, *Superintendent*.

BOSTON MEDICAL HISTORY CLUB.

Meeting January 15 at 8:15 P.M.—Dr. Isidor H. Coriat, "Symbolism of the Gold-Headed Cane;" Mr. James F. Ballard, "Bibliographic Demonstration of Ancient Medical Texts;" Dr. Gardner W. Allen, "Benjamin Franklin's Letter on Lead Poisoning;" Dr. William P. Coues, "Herbert McEvily's Account of a Surgical Operation at Sea."

JOHN W. CUMMIN, *Secretary*.

RURAL SANITATION AND PUBLIC HEALTH ADMINISTRATION.

As a part of a course of lectures in the Harvard School of Public Health, given in Building E of the Harvard Medical School, Dr. A. J. McLaughlin of the United States Public Health Service will consider public health administration from the stand point of the federal government, on Tuesday, January 16, and Thursday, January 18, from 4 to 5 P.M. Dr. L. L. Lumsden spoke on "Rural Sanitation" on January 9 and will also lecture on the same subject on January 11 at 4 o'clock. Anyone interested is cordially invited.

THE BOSTON ASSOCIATION OF CARDIAC CLINICS

Announces a meeting at the new Boston Living-It Hospital, Longwood Avenue, Thursday, January 18, at 8:15 P.M. Subject, "Heart Disease Complicating

Pregnancy." Speakers: Dr. William B. Breed and Dr. Burton E. Hamilton. Dr. Franklin S. Newell and Dr. Foster S. Kellogg will open the discussion.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District: Hyannis, — February 2, 1923, (Annual Meeting).

Bristol South District: — Fall River, — May 8, 1923.

Essex North District: — Lawrence, Y. M. C. A. Building (Annual Meeting), May 2, 1923.

Meeting of the Suffolk District and the Boston Medical Library, at the Library:

January 31, 1923.—Medical Meeting. "Epidemic Encephalitis."

February 28, 1923.—Medical Meeting. "Colitis," Dr. Henry F. News, Boston.

March 28, 1923.—Surgical Meeting. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lillethall of New York.

April 25, 1923.—Annual Meeting. Election of Officers. "The Past Twelve Years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexia Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District: —Meeting, Wednesday, January 31, 1923.

Middlesex East District: — Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Cramb and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District Meetings are scheduled as follows:

February 14, 1923.—The meeting will be held at the Worcester City Hospital at 8:15 P.M. The programme will consist of a series of papers by members of the staff.

March 14, 1923.—The meeting will be held at St. Vincent's Hospital at 8:15 P.M. The programme will consist of a series of papers by members of the staff.

April 11, 1923.—The meeting will be held at Memorial Hospital at 8:15 P.M., and the programme will consist of a series of papers by members of the staff.

May 9, 1923.—Annual meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND PEDIATRIC SOCIETY.—The following are the dates for meetings the coming season. Each meeting is on the second Friday of the month at the Boston Medical Library: January 13, February 9, March 9, April 13 and May 11.

January, 1923.—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting.

January, 1923.—Boston Association of Cardiac Clinics, Meeting January 13, 1923, at 8:15 P.M. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

January, 1923.—Boston Medical History Club will meet January 15, 1923.

February, 1923.—New England Dermatological Society Meeting, February 14, 1923, at 8:30 P.M., in the Skin Out-Patient Department, Massachusetts General Hospital. C. Guy Lane, Secretary.

February, 1923.—Boston Medical History Club will meet the third Monday of this month.

March, 1923.—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923.—Boston Association of Cardiac Clinics, Meeting March 15, 1923, at 8:15 P.M. Boston City Hospital. Subject: Prevention of Heart Failure.

March, 1923.—Boston Medical History Club will meet the third Monday of this month.

April, 1923.—New England Dermatological Society Meeting, April 11, 1923, at 3:30 P.M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Manager. Mass. State.

April, 1923.—Boston Medical History Club will meet the third Monday of this month.

May, 1923.—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; W. H. Allen, Carpenter, Secretary.

May, 1923.—Boston Association of Cardiac Clinics, Meeting May 17, 1923, at 8:15 P.M. Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923.—American Medical Association, San Francisco, June 25-29, 1923; Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923.—Massachusetts Association of Boards of Health, July 26, Nantucket, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased September 2, 1922.